

# TRANSCRIPT OF RECORD.

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SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, ~~1913~~ 1914

No. ~~42~~ 104

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MARYLAND STEEL COMPANY OF BALTIMORE COUNTY,  
APPELLANT,

vs.

THE UNITED STATES.

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APPEAL FROM THE COURT OF CLAIMS.

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FILED JANUARY 20, 1918.

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(23,513)

(23,513)

SUPREME COURT OF THE UNITED STATES  
OCTOBER TERM, 1913.

No. 435.

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MARYLAND STEEL COMPANY OF BALTIMORE COUNTY,  
APPELLANT,

v.s.

THE UNITED STATES.

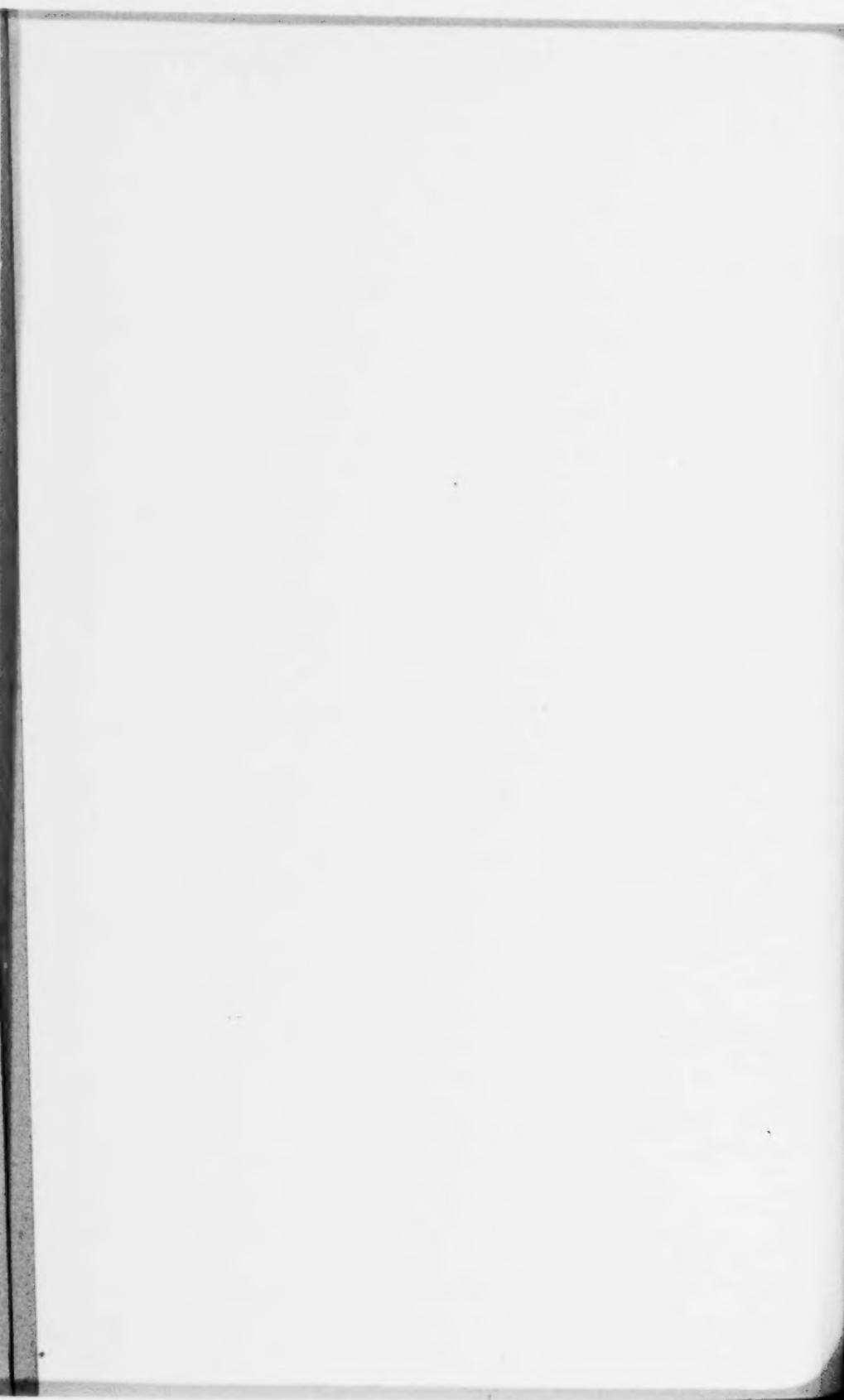
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APPEAL FROM THE COURT OF CLAIMS.

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# In the Court of Claims

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No. 31281.

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MARYLAND STEEL COMPANY OF BALTIMORE COUNTY,  
*Claimant,*

*v.*

UNITED STATES OF AMERICA, *Defendant.*

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(Petition filed December 20, 1911.)

*To the Court of Claims of the United States:*

The Maryland Steel Company of Baltimore County respectfully states as follows:

1. The Maryland Steel Company of Baltimore County is a corporation duly organized under the laws of the State of Maryland, and makes and files this petition in its own right.

2. Heretofore, to wit, on the 24th day of February, in the year 1908, the claimant entered into a written contract with the defendant in and by which it was covenanted and agreed that in accordance with the advertisement and specifications attached to said written contract the claim-

ant should furnish all the necessary labor and material to build and should build one steel hull, twin screw, suction dredge, furnish and install in the dredge the propelling machinery, pumping machinery, and electric light plant, and all other machinery and other parts required to be installed; all work to be prosecuted faithfully and diligently and the dredge when complete in every respect should be delivered to the defendant at Sparrow's Point, in the State of Maryland.

3. And in and by said contract the defendant covenanted and agreed with the claimant that said defendant would pay to the claimant in full payment for said above described work completed and accepted by the defendant after the final trial provided by said specifications the sum of three hundred and fifty-seven thousand and five hundred dollars.

4. A copy of said contract is hereto attached, together with the advertisement and specifications therein referred to, and prayed to be taken as part hereof as if the same had been fully at large set forth herein.

5. The claimant did furnish the necessary labor and material, and did build, furnish and install said hull and machinery and plant, and do all the claimant had agreed to do under the terms and as required by said contract, all of which labor, material, work and construction were duly accepted by the defendant on the 6th day of January in the year 1909, and thereupon the claimant became and was entitled to receive the money due therefor. The defendant from time to time paid the claimant as required by the terms of said contract with the exception of four thousand seven hundred and fifty dollars, which amount is now justly due and owing to the claimant from and by the defendant, exclusive of all set-offs and just grounds of defense,

with interest thereon from the 4th day of November in the year 1908.

6. There has been no action on the above set forth claim by the Congress, but it has been disallowed by the Auditor for the War Department. The claimant is the sole owner of said claim, and solely interested therein; no assignment or transfer of said claim or any part thereof or interest therein has been made; said claimant is justly entitled to the amount therein claimed from the United States, after allowing all just credits and off-sets; the claimant, a corporation duly organized under the laws of the State of Maryland, has at all times borne true allegiance to the United States, and has not in any way voluntarily aided or abetted or given encouragement to rebellion against the said Government; and the facts stated in the above petition are true.

MARYLAND STEEL COMPANY OF  
BALTIMORE COUNTY,  
By F. W. Wood, *Prest.*

ALEXANDER PRESTON,  
WALTER D. DAVIDGE,

*Attorneys for Claimant.*

*City and County of Baltimore,* }  
State of Maryland,                   } ss:

I do solemnly swear that I am the agent and Attorney in fact of the Maryland Steel Company of Baltimore County, the claimant in the above petition, that I have read the said petition and the facts therein stated are true.

F. W. Wood, *Prest.*

Subscribed and sworn to before me this 11th day of November, 1911.

(Notarial Seal)

JOHN H. K. SHANNAHAN, JR.,  
*Notary Public.*

## FORM 19.\*

\*(To be used when the specifications call for liquidated damages.)

1. This Agreement entered into this Twenty-fourth day of February, nineteen hundred and eight, between Major J. C. Sanford, Corps of Engineers, United States Army, of the first part, and Maryland Steel Company of Baltimore County, of Sparrow's Point, in the County of Baltimore, State of Maryland, of the second part, WITNESSETH, that, in conformity with the advertisement and specifications hereunto attached, which form a part of this contract, the said Major J. C. Sanford, for and in behalf of the United States of America, and the said Maryland Steel Company of Baltimore County, do covenant and agree, to and with each other, as follows:

In accordance with its written proposal dated February 10th, 1908, the said Maryland Steel Company of Baltimore County shall furnish all the necessary labor and material, except as specified in the specifications to be furnished by the United States, and build one steel hull twin-screw suction dredge, furnish and install in the dredge the propelling machinery, pumping machinery, and electric light plant, and all other machinery and other parts required to be installed, all work to be prosecuted faithfully and diligently, and the dredge when complete in every respect shall be delivered to the United States at Sparrow's Point, Maryland; all in strict accordance with the conditions and requirements of the specifications hereunto attached.

The said Maryland Steel Company of Baltimore County shall receive in full payment for the above described work completed and accepted on the part of the United States, after the final trial of the machinery required by paragraph 236 of the specifications, the sum of Three Hundred

Fifty-Seven Thousand, Five Hundred Dollars (\$357,500), in accordance with this agreement.

2. All materials furnished and work done under this contract shall, before being accepted, be subject to a rigid inspection by an inspector appointed on the part of the Government, and such as do not conform to the specifications set forth in this contract shall be rejected. The decision of the engineer officer in charge as to quality and quantity shall be final.

3. The said party of the second part shall commence the work herein contracted for within ten (10) days after date of notification of approval of the contract by the Chief of Engineers, U. S. Army, and shall complete the same within nine (9) months from the date of notification of approval of contract, including time necessary for trials as described in said specifications, except final trial of machinery.

4. If the party of the second part shall delay or fail to commence with the delivery of the material or the performance of the work as specified herein, or shall, in the judgment of the engineer in charge, fail to prosecute faithfully and diligently the work in accordance with the specifications and requirements of this contract, then, in either case, the party of the first part, or his successor legally appointed, shall have power, with the sanction of the Chief of Engineers, to annul this contract by giving notice in writing to that effect to the party of the second part, and upon the giving of such notice all payments to the party of the second part under this contract shall cease, and all money or reserved percentage due or to become due the said party of the second part, by reason of this contract, shall be retained by the party of the first part until the final completion and acceptance of the work herein stipulated to be done; and the United States shall have the right

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to recover from the party of the second part whatever sums may be expended by the party of the first part in completing the said contract in excess of the price herein stipulated to be paid the party of the second part for completing the same; and the party of the first part may deduct all the above-mentioned sums out of or from the money or reserved percentage retained as aforesaid; and upon the giving of the said notice of the party of the first part shall be authorized, if an immediate performance of the work or delivery of the materials be in his opinion required by the public exigency, to proceed to provide for the same by open purchase or contract, as prescribed in Section 3709 of the Revised Statutes of the United States.

5. It is further expressly understood and agreed that time shall be considered as an essential feature of this contract, and that in case of the failure upon the part of the party of the second part to complete this contract within the time as specified and agreed upon that the party of the first part will be damaged thereby, and the amount of said damages being difficult, if not impossible of definite ascertainment and proof, it is hereby agreed that the amount of said damages shall be estimated, agreed upon, liquidated, and fixed in advance, and they are hereby agreed upon, liquidated, and fixed at the sum of seventy-five (75) dollars for each and every day the party of the second part shall delay in the completion of this contract, and the party of the second part hereby agrees to pay to the United States as liquidated damages, and not by way of penalty, the sum of seventy-five (75) dollars for each and every day the party of the second part shall delay in the completion of this contract, said delay not being the fault of the party of the first part.

It is further understood and agreed that the United

States shall also have the right to recover from the party of the second part all costs of inspection and superintendence incurred by the United States during the period of delay, and also a reasonable value of any labor and materials which may be furnished by the party of the first part to the party of the second part during the time the latter is proceeding under this contract. And the party of the first part may deduct or retain all of the above-mentioned sums out of or from any money or reserved percentages that may be due or become due the party of the second part under this agreement.

*Provided, however,* that if the party of the second part shall by strikes, epidemics, local or State quarantine restrictions, or by abnormal force or violence of the elements, be actually prevented from completing the work or delivering the materials at the time agreed upon in this contract, and such delay is without contributory negligence on his or their part, such additional time may, with the prior sanction of the Chief of Engineers, be allowed him or them, in writing, for such completion as, in the judgment of the party of the first part, or his successor, shall be just and reasonable; but such allowance or extension shall in no manner affect the rights or obligations of the parties under the contract, but the same shall subsist, take effect, and be enforceable precisely as if the new date for such commencement or completion had been the date originally herein agreed upon.

6. If, at any time during the prosecution of the work, it be found advantageous or necessary to make any change or modification in the project, and this change or modification should involve such change in the specifications as to character and quantity, whether of labor or material, as would either increase or diminish the cost of the work,

then such change or modification must be agreed upon in writing by the contracting parties, the agreement setting forth fully the reasons for such change, and giving clearly the quantities and prices of both material and labor thus substituted for those named in the original contract, and before taking effect must be approved by the Secretary of War: *Provided*, that no payments shall be made unless such supplemental or modified agreement was signed and approved before the obligation arising from such modification was incurred.

7. No claim whatever shall at any time be made upon the United States by the party of the second part for or on account of any extra work or material performed or furnished, or alleged to have been performed or furnished under or by virtue of this contract, and not expressly bargained for and specifically included therein, unless such extra work or materials shall have been expressly required in writing by the party of the first part or his successor, the prices and quantities thereof having been first agreed upon by the contracting parties and approved by the Chief of Engineers.

8. The party of the second part shall be responsible for and pay all liabilities incurred in the prosecution of the work for labor and material.

9. It is further agreed by and between the parties hereto that until final inspection and acceptance of, and payment for, all of the material and work herein provided for, no prior inspection, payment, or act is to be construed as a waiver of the right of the party of the first part to reject any defective work or material or to require the fulfillment of any of the terms of the contract.

10. The party of the second part further agrees to hold

and save the United States harmless from and against all and every demand, or demands, of any nature or kind for, or on account of, the use of any patented invention, article, or process included in the materials hereby agreed to be furnished and work to be done under this contract.

11. Payments shall be made to the said party of the second part as prescribed in paragraph .... of the specifications hereto attached and forming part of this agreement.

12. Neither this contract nor any interest therein shall be transferred to any other party or parties, and in case of such transfer the United States may refuse to carry out this contract either with the transferor or the transferee, but all rights of action for any breach of this contract by said party of the second part are reserved to the United States.

13. No Member of or Delegate to Congress, nor any person belonging to, or employed in, the military service of the United States, is or shall be admitted to any share or part of this contract, or to any benefit which may arise herefrom.\*

But this stipulation, so far as it relates to members of or Delegates to Congress, is not to be construed to extend to this contract.

14. This contract shall be subject to approval of the Chief of Engineers, U. S. A.

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\*NOTE.—Here add to any contract made with an incorporated company for its general benefit the following words, viz: "But this stipulation, so far as it relates to Member of or Delegates to Congress, is not to be construed to extend to this contract." —See Sec. 3740, Revised Statutes.

*In witness whereof* the parties aforesaid have hereunto placed their hands the date first hereinbefore written.

WITNESSES:

(Signed) J. M. HOODNER as to (Signed) J. C. SANFORD,  
*Major, Corps of Engineers, U. S. Army.*

Attest: As to MARYLAND STEEL COMPANY OF  
BALTIMORE COUNTY,  
by F. W. WOOD, *President.*

(Signed) FRANK TENNEY, *Secretary.*

(Executed in triplicate.)

Approved: March 21st, 1908.

(Signed) A. MACKENZIE,  
*Brig. Gen., Chief of Engineers, U. S. Army.*

†I do solemnly swear that the copy of contract hereto annexed is an exact copy of a contract made by me personally with .....

.....; that I made the same fairly, without any benefit or advantage to myself, or allowing any such benefit or advantage corruptly to the said .....

.....or any other person; and that the papers accompanying include all those relating to the said contract as required by the statute in such case made and provided.

.....*Corps of Engineers.*

Subscribed and sworn to before me this.....  
day of ....., 190

†NOTE.—This affidavit is required only on the quintuplicate copy of contract intended for the Returns Office, Department of the Interior.—A. R. 561.

¶I certify that the award of the foregoing contract was made to the lowest responsible bidder for the best and most suitable articles and service, on proposals received in response to advertisement hereto attached, which was published for ..... days by §..... and that further advertisement was impracticable.

.....  
*Corps of Engineers, Contracting Officer.*

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¶NOTE.—Certificate to be given by the contracting officer on the copies of the contract for the Chief of Engineers and the Auditor for the War Department.

§NOTE.—Insert "Newspaper" or "Poster and circular letter," etc., as the case may be.

NOTE.—The copy of contract for the Bureau must be accompanied with an abstract of the bids, and copy of each bid and advertisement, unless previously furnished.—A. R. 547.

NOTE.—The name of the principal intended to be bound as party of the second part, whether an individual, a partnership, or a corporation, should be inserted in and signed to the contract. An officer of a corporation, a partner, or an agent signing for the principal should add his name and designation after the word "by" and under the name of the principal; and an agent of the principal or an officer, if the principal be a corporation, should file evidence of his authority.

## FORM 19.

Authorized April 30, 1896.

With Amendments to June 12, 1905.

## ARTICLES OF AGREEMENT

Entered into....., 190 ,  
between .....  
.....of the one part,  
and .....  
.....of the other part,  
for .....  
.....

## IMPROVING GALVESTON HARBOR, TEXAS.

## SEA-GOING SUCTION DREDGE FOR GALVESTON HARBOR.

## Advertisement.

U. S. ENGINEER OFFICE, 815 Witherspoon Building.

PHILADELPHIA, Pa., Jan. 15, 1908.

Sealed proposals for constructing one steel, twin-screw suction dredge for Galveston Harbor, Texas, will be received here until 2.30 P. M., Feb. 14, 1908, and then publicly opened. Information furnished on application.

J. C. SANFORD,  
*Major, Engrs.*

## GENERAL SPECIFICATIONS.

1. No proposal will be considered unless accompanied by a guaranty, which should be in manner and form as directed. At the option of bidders certified checks for the amount of the guaranty required may be furnished in place of the guaranty.
2. All bids and guaranties must be made in duplicate upon printed forms to be obtained at this office.

3. Each guarantor will justify in the sum of forty thousand (40,000) dollars. The liability of the guarantors and bidder is determined by the act of March 3, 1883, 22 Statutes, 487, Chap. 120, and is expressed in the guaranty attached to the bid.

4. The bidder to whom award is made will be required to enter into written contract with the United States, with good and approved security, in an amount of one hundred twenty-five thousand (125,000) dollars within ten (10) days after being notified of the acceptance of his proposal. The contract which the bidder and guarantors promise to enter into shall be, in its general provisions, in the form adopted and in general use by the Engineer Department of the Army, blank forms of which can be inspected at this office, and will be furnished, if desired, to parties proposing to put in bids. Parties making bids are to be understood as accepting the terms and conditions contained in such form of contract, which will provide for liquidated damages in an amount of seventy-five (75) dollars per day for any period of delay beyond the time agreed upon for completion.

5. The proposals and guaranties must be placed in a sealed envelope marked "Proposals for constructing dredge, to be opened Feb. 14, 1908," and inclosed in another sealed envelope addressed to Major J. C. Sanford, Corps of Engineers, U. S. A., 815 Witherspoon Building, Philadelphia, Pa., but otherwise unmarked. It is suggested that the inner envelope be sealed with sealing wax.

6. Whenever the term "Engineer" is used in the specifications it is understood to refer to the officer of the Corps of Engineers, U. S. Army, in charge of the work. He will be represented on the work by as many assistants as may be necessary. Whenever the term "contractor" is used it is understood to refer to the second party to the contract. Subcontractors, as such, will not be recognized.

7. It is understood and agreed that the quantities given

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in these specifications are approximate only, and that no claim shall be made against the United States on account of any excess or deficiency, absolute or relative, in the same. No allowance will be made for the failure of a bidder or of the contractor to estimate correctly the difficulties attending the execution of the work.

8. The contractor will not be allowed to take advantage of any error or omission in these specifications, as full instructions will always be given should such error or omission be discovered.

9. It is understood and agreed that the contractor assumes full responsibility for the safety of his employees, plant, and materials, and for any damage or injury done by or to them from any source or cause.

10. In the prosecution of the work herein specified, the employment of persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several States, Territories, or municipalities having criminal jurisdiction is prohibited.

11. The contractor will be required to discharge any employee who, in the opinion of the Engineer, is objectionable or incompetent. Such discharge shall not be made the basis of any claim for compensation or damages against the United States or any of its officers or agents.

12. The contractor must at all times either be personally present upon the work or be represented thereon by a responsible agent, who shall be clothed with full authority to act for him in all cases and to carry out any instructions relative to the work which may be given by the Engineer, either personally or through an authorized representative.

13. No work shall be done on Sunday or legal National holidays, except in cases of extraordinary emergency.

14. The contractor will be required to commence work under the contract within ten (10) days after the date of notification of approval of the contract by the Chief of Engineers, U. S. Army, to prosecute the said work with

faithfulness and energy, and to complete it within the times stated in his proposal.

15. The decision of the Engineer as to quality and quantity shall be final.

16. Payments will be made as provided in paragraph 239.

#### SPECIAL CONDITIONS.

##### HULL.

The hull of the dredge, as well as the bins, shall be of steel.

17. *Dimensions.*—Length over all ..... 304 feet.

Length between perpendiculars ..... 290 feet.

Moulded beam ..... 51 feet.

Moulded depth ..... 27 feet.

18. *Material.*—The hull shall be constructed to conform in every respect with the rules and regulations of the American Bureau of Shipping for vessels of the first class unless otherwise specified; and all material used shall withstand successfully the test prescribed by said rules. The expense of testing the material, except salary and traveling expenses of inspector, will be paid by contractor. In gauging the thickness of plates, measurements will be made at each corner and throughout the area. A variation of more than  $2\frac{1}{2}$  per cent. in any one of these measurements below the specified thickness will cause the plate to be rejected. All wood entering into the construction of houses and fittings shall be of the best quality, live, sound and free from any defects that would render it unserviceable for the purpose intended. All wood to be thoroughly seasoned. forgings shall be subjected to the same tests prescribed for forgings under propelling machinery (Par. 114). Tensile strength 60,000 pounds per square inch. In all cases where weights of steel is stated in pounds, it shall mean per lineal foot for angles and shapes, and per square foot for plates.

19. *Frames.*—The frames shall be of bulb angle 8 inches by  $3\frac{1}{2}$  inches, 23.9 pounds from frame 28 to frame 121 and 19.1 pounds at ends. They shall be spaced 24 inches from center to center except at gate openings and shall be in one piece from midship line to main deck. The spacing at gate openings shall be 30 inches as shown. These frames shall be properly beveled to give a good connection to shell plating. At the upper end where frames connect to brackets and deck beams all rivet holes may be punched in either beam or frame and one hole in the other member for connection. The remaining holes in this member shall be drilled in place after erection.

20. *Reverse Frames.*—There shall be an angle bar  $3\frac{1}{2}$  inches by 4 inches by 11.9 pounds on every floor plate. From frame 55 to frame 94 these shall be double.

21. *Floor Plates.*—These shall be 27 inches and 36 inches deep at center line. Those under engine and boiler rooms shall be 25 pounds, the remainder from frame 28 to frame 121  $22\frac{1}{2}$  pounds and the end ones 18 pounds.

22. *Vertical Keel.*—This shall be continuous, 57 inches wide and 25 pounds. It shall be secured to each floor by double angle clips  $3\frac{1}{2}$  inches by  $3\frac{1}{2}$  inches by 11.1 pounds. There shall be a continuous floor stringer on each side of this plate 20 inches wide by 25 pounds between points 5 feet forward of forward bin and the same distance aft of after bin. At the ends this plate shall be 20 pounds. On each side of this vertical keel plate there shall be three 6-inch by 4-inch by 20-pound angles, one at the lower edge for attaching to the flat keel, one at the top and one between these for attaching to the floor stringer. On the upper angles put a stringer plate about 13 inches wide by 25 pounds to points past the bins and 20 pounds at ends.

23. *Side Keelson.*—This shall be intercostal and shall consist of 25-pound plates, flanged on the bottom edge,

extending above the floors 6 inches. It shall be secured to the floors by angle clips  $3\frac{1}{2}$  inches by  $3\frac{1}{2}$  inches by 11.1 pounds. Riveted to the tops of these plates and the reverse frames there shall be two angles 6 inches by 4 inches by 20 pounds. Where reverse frames are single a  $3\frac{1}{2}$ -inch by  $3\frac{1}{2}$ -inch angle clip 11.1 pounds, 12 inches long, shall be riveted to top of floors.

24. *Bilge Keelson*.—This shall consist of two 6-inch by 4-inch by 20-pound angles riveted to the reverse frames. Where reverse frames are single a  $3\frac{1}{2}$ -inch by  $3\frac{1}{2}$ -inch angle clip, 11.1 pounds, 12 inches long, shall be riveted to top of floors.

25. *Upper Bilge Stringer*.—This shall consist of a 25-pound plate, the width of the web frames, 27 inches, with two 4-inch by 6-inch by 20-pound angles. The outer edges of the plates shall be connected to the shell plating by angle clips  $3\frac{1}{2}$  inches by  $3\frac{1}{2}$  inches by 11.1 pounds. Clips 12 inches long of the same size angle shall be riveted to the back of the bulb angle frame to rivet the inner angle to. The stringer plate shall be intercostal between web frames, and at these frames shall have riveted on clips of  $3\frac{1}{2}$ -inch by  $3\frac{1}{2}$ -inch by 11.1-pound angle. Connection between stringer and web frames shall be made by means of diamond plates about 24 inches square by 20 pounds, and double angle clips  $3\frac{1}{2}$  inches by  $3\frac{1}{2}$  inches by 11.1 pounds at each end. The ends of all stringers, where practicable, shall terminate in tie plates and breast hooks. All keelsons and stringers may be reduced at ends in accordance with the rules of the American Bureau of Shipping.

26. *Side Stringers*.—These shall be in all respects similar to the upper bilge stringer except that the lower side stringer has four and the upper three longitudinal angles 4 inches by 6 inches by 20 pounds. Clips, diamond plates, etc., shall be as specified in the preceding paragraph.

27. *Deck Beams.*—These for the main deck shall be of bulb angle 10 inches by 35.2 pounds on every frame from four frames forward of forward bin to four frames aft of after bin. The remaining frames at ends shall be 10-inch by 26.2-pound bulb angle. The midship beams shall have a crown of 6 inches in the span. Two lower deck beams each end of each bin shall be 10-inch by 35.2-pound bulb angle. The remaining lower deck beams, except at bulkheads where angles may be needed, shall be 10-inch by 26.2-pound bulb angle. Where angles are required at bulkheads they shall be of strength and stiffness equivalent to the bulb angle beams specified. The lower deck beams shall have no crown.

28. *Web Frames.*—These shall be located as shown, and shall consist of a 25-pound plate 27 inches wide reinforced on the inner edge by two angles of the same size as the reverse frames.

29. *Stem.*—This shall be in two pieces. The upper portion shall consist of a steel bar 10 inches by  $2\frac{3}{4}$  inches scarfed to the lower casting. The lower part shall be a steel casting of the same size as the forged stem at top and scarfed to it. The lower portion shall be V-shaped to connect to plating and shall extend far enough aft to make a secure connection to the flat and vertical keels.

30. *Stern Post.*—This shall be a steel casting as shown extending at bottom far enough forward to make a secure connection to the flat and vertical keel. This post shall have cast on it lugs for rudder stops and pintle bearings, these latter being bushed with lignum vitae. The top of this post shall extend under and forward of transom floors, and shall be attached thereto by heavy angle clips.

31. *Stanchions.*—These shall be installed as required by the Rules of the American Bureau of Shipping. Additional stanchions shall be installed under the pumping platform and electric light plant and as may be required.

32. *Rudder*.—This shall be of steel of the single plate type, the plate being 1 inch thick, and the stock and pintles conforming to the requirements of the American Bureau of Shipping for a steamer whose second numeral is 40,000. The arms supporting the plate shall be forged. It shall be provided with pintle lugs to correspond with those on the stern post. A bearing shall be provided on lower deck to take the weight of the rudder. A loose, flat bronze ring shall be placed between the collar on rudder and bearing plate, riveted to deck. Means for oiling shall be provided. A suitable stuffing box shall be provided at the point where the rudder head passes through the stern plating. There shall also be a bearing at upper deck for rudder head. All rudder pintles shall be fitted with brass sleeves. Rudder stops shall be forged on. The contractors, if they so desire, may submit for consideration a cast steel rudder, of the size and shape shown, and equal in strength to that above described.

33. *Quadrant*.—This shall be of steel, forging, casting or combination, shall have double grooves for chain, and shall be fitted to rudder head with two keys and clamping bolts. This quadrant shall be placed above the deck as shown.

34. *Stern*.—This, from transom floor aft, shall be framed with angles 6 inches by 4 inches by 20 pounds.

35. *Flat Keel*.—This shall be of the flat plate type in two thicknesses from frame 24 to frame 121 inclusive. The inner course shall be 32 inches wide by 25 pounds, and the outer course 44 inches wide by 36 pounds to four feet beyond the end of the inner keel at each end. The remaining lengths at ends may be 25 pounds.

36. *Plating*.—This shall be of the weights shown on the midship section, the heavier weights running from frame 27 to frame 122 with lighter weights at ends. All outside

plates shall have doubling plates at bulkheads, and shall be reinforced at openings, the total strength at these places being at least equal to the original plate. Transverse or vertical joints below the light water line may be lapped, all other vertical joints shall be butted with single straps. All plating shall be worked "in and out" in longitudinal staves. Longitudinal laps to be double riveted, and all vertical laps and butts to be treble riveted. The plating shall be double riveted to stem and stern posts. The inner stave of all plating shall be worked up close to the frames. No liners will be allowed except for the outside staves, and in such places where they become a necessity from causes other than bad fit. All edges and butts shall be planed. All plates shall be thoroughly cleaned of dirt, rust, etc., before being fitted.

37. *Riveting*.—All rivet holes in hull plating shall be countersunk on the outside. After assembling all holes shall be reamed; the use of a drift pin to bring holes in line will not be allowed. Rivets must be so heated that they are of an equal temperature throughout. The size of the rivets shall be as specified by the rules of the American Bureau of Shipping. All outside rivets above the light water line shall be finished flush with plating; all rivets below this line and all rivets in bins shall be finished convex projecting about  $\frac{1}{8}$ -inch beyond the plating.

38. *Staples*.—All staples for making watertight connection between beams, plates, etc., shall be forged from angles, well fitted to place and caulked.

39. *Deck Stringers*.—The main deck stringer plate shall be 60 inches wide by 25 pounds to 20 pounds at ends. It shall be butted, double riveted to straps and connected to sheer stave by an angle 6 inches by 6 inches by 24 pounds. Where scuppers occur the strength of the angle shall be maintained by reinforcing it. In the way of the coaling

hatches and at all corners of bins, the stringer shall be doubled. The lower deck stringer shall consist of a 25-pound plate in way of bins and a 20-pound plate between and fore and aft of these.

40. *Deck Plating*.—The deck plating shall be 14 lbs. to 12 lbs. at ends. Plating under windlass and capstan to be  $\frac{1}{2}$ -inch thick. Plating on lower deck to be 12 pounds. All rivets shall be countersunk on the upper side. On the fore and after ends of both bins at the main deck put a transverse stringer about 28 inches wide by 20 pounds, and at lower deck as shown. All decks under wood floors shall have a coat of pitch with cement on top.

41. *Bulkheads*.—There shall be a watertight bulkhead on frames Nos. 12, 46 and 131. These shall extend only to lower deck. There shall also be a water tight bulkhead on frame No. 76, separating the boiler from the engine room. This shall extend to main deck. Plates of bulkheads to be 16 to 12 pounds and stiffeners of bulb angle 6 inches by 3 inches by  $13\frac{3}{4}$  pounds vertical on one side spaced 24 inches centre to centre and horizontal on the other, spaced 48 inches centre to centre. Attachment of ends of stiffeners and all other details to be as required by the Rules of the American Bureau of Shipping. Put a watertight door in bulkheads 76 and 46 to be operated from either side. The spaces forward of bulkhead 12 and aft of bulkhead 131 will be used as water tanks, and both bulkheads shall be stiffened and tested by filling the spaces with water before launching, to the level of the lower deck, under an additional head of 6 feet. The other two bulkheads to be tested by a stream from a fire hose. Sluice valves to be placed in all bulkheads. Where keelsons or other members pass through bulkheads, collars shall be fitted around same, riveted and caulked watertight.

42. *Scuppers*.—Twelve scuppers 6 inches diameter shall

be placed on main deck where directed. The two central ones will not be located until after the vessel is launched and the trim determined. These shall all be provided with removable composition gratings, and the discharge be carried by pipes to points below the sheer strake, where it shall be discharged outboard.

43. *Bunkers.*—These shall be built on each side of the ship where shown and be adapted for carrying coal or oil, and the construction and riveting on the bunkers shall be "oil tight." The hatches on deck shall be provided with oil-tight covers, and also gratings for use with coal. Where shown on midship section put in an intercostal longitudinal the length of the bunkers, on each side, making oil-tight connections to plating, floors, etc. This is to form one side of a space for collecting any oil drippings, and this space will be connected to a special bilge pump. From the top of the bunkers carry a 6-inch vent pipe about 6 feet above the deck, put on a return bend and cover the opening with heavy galvanized wire net. Each of the three bunkers shall have a slat door into the boiler room and also removable oil-tight doors to close openings. The side of the bunkers in the boiler room shall be covered with 2 inches of 85 per cent. magnesia, properly secured and protected with a galvanized iron cover.

44. *Foundation for Engine and Thrust Bearings.*—The foundation for the main engine will be built up from and form a part of the framing of the vessel. The foundation for the thrust bearing will be similar to, and form a continuation of, the engine foundation. Both will be stiffened in a fore and aft direction by intercostals. The top of both foundations will be formed of  $\frac{3}{4}$ -inch steel plates, secured together at joint by butt straps flush riveted.

45. *Limber Holes.*—Limber holes, 3 inches by 5 inches, properly located, shall be made in all floor plates and

frames, except those forming watertight bulkheads, and where directed.

46. *Bitts*.—There shall be 12 heavy cast-iron bitts, securely fastened with 1-inch bolts. Place wood pad under bitts.

47. *Chocks*.—There shall be 12 heavy cast-iron closed chocks and two heavy open roller chocks all securely fastened to foundation on deck and sheer strake.

48. *Hatches and Skylights*.—These shall be located where shown and the tops of all skylights shall be operated from the room below by suitable fixtures. The wood used shall be Michigan pine, and the glass, the best quality of skylight glass ribbed. Glass to have guards of  $\frac{3}{8}$ -inch galvanized iron rods. Put in round hatches where shown, 18 inches diameter. On the main deck forward put a hatch with trunk for entering hold. This is to have a watertight cover.

49. *Eye Bolts, etc.*.—All the necessary eye bolts, ring bolts, etc., for handling pipes, chains, boats, coal, cargo, provisions, etc., shall be provided and fitted in place on the dredge. The location of these will be determined during the construction of the dredge. Put a 1-inch eye bolt aft and forward of forward hatch.

50. *Hawser Pipes*.—There shall be two cast-iron hawser pipes, to take stockless anchors, fitted in place.

51. *Chain Lockers*.—There shall be two chainlockers in the fore peak, to be built of angles, 5 inches by 3 inches, 12.8 pounds, spaced 24 inches center to center, and covered with plate  $\frac{1}{2}$ -inch thick, riveted to angles. Attach two heavy rings in each locker for securing chain.

52. *Companion Ways*.—There shall be one companion way, constructed of angles, 3 inches by 3 inches, 7.2 pounds, and  $\frac{1}{4}$ -inch steel. Doors with lock and proper attachments to be placed as directed.

53. *Hose Racks.*—There shall be four hose racks, built of oak and placed where directed, each being of such size that it will hold a coil of 50 feet of  $2\frac{1}{2}$ -inch double-jacket fire hose.

54. *Ladders.*—Steel pipe and wood ladders shall be placed where shown and necessary. All fittings for holding ladders in place shall be furnished. Furnish rope and Jacobs ladders.

55. *Ventilators.*—There shall be one 20-inch ventilator between frames 3 and 4; two 36-inch vents on frame 66 to boiler room; four 20-inch vents over main engine room and four 20-inch vents on after house. The cowls to all these shall turn easily and those in the engine and boiler rooms shall be operated from these rooms. The ventilators leading to the fire room shall be provided with ash hoist gear lined with angle iron and have doors at main deck. All cowls and exposed parts of these ventilators shall be made of heavy galvanized iron. There shall also be placed four 12-inch mushroom ventilators over rooms of after house and three on pilot house. These shall be opened and closed from within the rooms. All parts of the mushroom ventilators within the quarters aft, of brass. Put 6-inch goose neck ventilators where shown, and make them 2 feet above the deck at crown. Put in two ventilators for lower toilets aft—as shown. The two exhaust ventilators on main deck forward shall be supplied with electric exhaust fans, 24 inches diameter, General Electric Company make, or equal.

56. *Railing.*—There shall be a polished machinery steel railing,  $1\frac{1}{4}$  inches in diameter, around the propelling and pumping engines. The railing will be secured to  $1\frac{1}{2}$ -inch diameter steel stanchions spaced 3 feet apart. In the pilot house there shall be a brass railing  $1\frac{1}{4}$  inches in diameter, around front of pilot house, also across the par-

tition between the pilot house and captain's room. On the outside of pilot house, at the doors, there shall be two (one at each outside door) grab rails of brass  $1\frac{1}{4}$  inches in diameter, and two feet long. The railing in the pilot house, and the grab rails outside of the pilot house doors, shall be fastened to brass stanchions about 6 inches long; stanchions to be secured to woodwork by brass screws. Put grab rail each side of door to passage.

57. *Winch*.—Place on foundation over after bin a steam winch, Lidgerwood or equal. This shall have double 8-inch by 10-inch cylinders, non-reversible, and shall have two large gipsey heads, operated independently of each other, with positive clutches and friction bands. Furnish canvas cover for winch. Steam shall be reduced to about 90 pounds for this.

58. *Windlass*.—There shall be one No. 8 Hyde Combination Steam and Hand windlass, Lidgerwood or other equally good, with reverse lever. Cylinders 10 inches by 10 inches, or of equivalent dimensions. Wild cats for  $1\frac{1}{8}$ -inch stud link chain, regulation size, winch ends medium size. A canvas cover shall be furnished for windlass. Steam pipe to this to be supplied with a suitable reducing valve to give a pressure of about 90 pounds per square inch. Set on pine pad.

59. *Steam Capstan*.—There shall be one No. 3 Hyde Steam Capstan, Lidgerwood or other equally good, with double cylinders, 7 inches by 8 inches, or equivalent dimensions. The throttle for operating capstan to be on deck. Put reducing valve on steam pipe as specified under windlass.

60. *Flag Poles*.—There shall be two pine flag poles; one forward 15 feet long, 5 inches in diameter; one aft, 18 feet long, 5 inches in diameter, both to have gilt ball, 4 inches in diameter, with sheave for flag halyards.

61. *Main Railing.*—The main railing shall be as shown, having 1½-inch diameter, wrought-iron stanchions, 3 feet high, riveted to sheer strake. There shall be three rows of galvanized-iron pipe through these stanchions. There shall be two gangways for coaling and two gangways for ladders. The top rail shall be of 1½-inch pipe, the other two of 1-inch.

62. *Side Lights.*—There shall be 60 side lights, 12 inches in diameter, clear opening, with composition frames, and provided with rubber gaskets, eye bolts, and hooks. They shall be made water tight. Eight lights at stem to be fitted with guards. Each light to be secured by three bolts with wing nuts—composition.

63. *Mast.*—There shall be one mast of Oregon pine, 20 inches in diameter at the deck, 14 inches at the hounds, and 6 inches at the head. It shall be 54 feet from main deck to mast heads. It shall be fitted with all the necessary iron work and rig. Mast head to have gilt ball 8 inches in diameter, with two sheaves for signal halyards. Two derricks shall be fitted of Oregon pine, 10 and 6 inches in diameter and 28 and 16 feet long, to be fitted with lifts, double blocks, with double falls, guys, etc. All ropes for falls and guys to be fitted and furnished by the contractor. Chain plates shall be riveted to sheer strakes. All iron work of masts and derricks shall be galvanized.

64. *Derrick Masts.*—There shall be two derrick masts placed as shown. These shall be 20 inches diameter at the deck, 14 inches at the top and 40 feet high above the deck. To each of these masts there shall be attached one boom 40 feet long and 14 inches diameter. These masts shall be well tied together and to the vessel, all iron work extra heavy and galvanized, and all designed for lifting 8,000 lbs. with one boom at a radius of 30 feet from the center of the mast. Furnish the necessary blocks and steel

wire rope falls for handling. Leads for hoisting and raising boom to be taken to winch over after bin.

65. *Water Tanks*.—From frame No. 76 to frame No. 93, shall be made water tight, as shown on section. Lightening holes, 14 inches by 20 inches, shall be cut in floor plates from frame No. 77 to frame No. 92, to allow for cleaning, painting and for circulation of water. The center keelson shall have two 3-inch holes drilled in it between each floor space from frame No. 77 to frame No. 92. Two tanks, 1,500 gallons capacity each, with filling pipe, splash plates, man hole, drain pipe, and vent. Tanks to connect to pump in galley and as specified. Tanks to be placed aft of after bin and cemented inside, and to have three coats of paint outside. Two filling plugs for tanks placed where directed on deck. Engine room tank to have valve for draining into bilge.

66. *Steam Steering Engine*.—There shall be one Williamson or equal steam and hand steering engine, cylinders 6 inches by 8 inches, diameter of wheel 5 feet, brass column and shaft in pilot house, with bell attachment. The engine shall be fitted with adjustable thrust bearing and double worm. It shall be provided with a Leslie, or equal, reducing valve.

67. *Rigging*.—There shall be six shrouds to mast, three on each side and one fore stay. The shrouds and stays shall be of  $\frac{7}{8}$ -inch galvanized steel wire rope served their entire length. They shall be set up to chain plates with  $1\frac{1}{2}$ -inch galvanized-iron turnbuckles. The shrouds shall have iron ratlines.

68. *Name*.—The name shall be on the stern in 10-inch cast brass letters. All lettering to be polished.

69. *Draft Figures*.—Draft figures shall be cut each side on stem and stern post and amidship for indicating draft of water.

70. *Guard Sponson.*—There shall be two long and two short guard sponsons built of angle bars 6 inches by 4 inches by 16.2 lbs., and 2-inch wrought-iron braces as per drawing. There shall be 4 oak guards, 8 inches by 10 inches, fastened to a 10-inch by 3½-inch channel, channel to be riveted to shell plating, at forward end. The guards shall be covered on the outside with 4-inch by ½-inch wrought-iron, fastened with ½-inch by 5-inch round spikes, heads of spikes to be countersunk. Two of these guards shall connect to the two long sponsons.

71. *Waste Lockers.*—There shall be two waste lockers, placed where directed, built of ½-inch steel, fitted with locks. Each shall have a capacity of 250 pounds of waste.

72. *Bins.*—There shall be two sand bins, built as shown on the drawings. The top of the forward bin shall start on frame No. 30 and extend to frame No. 55. The top of the after bin shall start on frame No. 94 and extend to frame No. 119. The bin studs shall be of bulb angle 6 inches by 3 inches by 13.8 pounds, spaced 24 inches center to center. The sides of the bins shall be braced as shown. On the top of the floors on each side of the gate openings, there shall be a 20-pound stringer plate extending at least one frame space fore and aft of bins. Stiffening at lower deck shall be as shown. Studs on ends of bins shall be connected at top and bottom as shown; and be supported between these points by two transverse girders. These shall connect to side stringers as shown. Bins shall be thoroughly caulked.

73. *Hips in Bins.*—The hips shall extend fore and aft and across the bottom of bins as per plan. The studs of hips shall be angle bars 4 inches by 3 inches, 11.1 pounds; they shall connect at the top by a 17½-pound gusset plate. At the bottom there shall be two 17½-pound gusset plates riveted to studs, one on each stud. At the bottom the gus-

set plate shall rivet to the floor plate stringers. The framing and plating for the central transverse hip shall extend from side to side of bin for strength. The longitudinal hip shall member to this and the bin ends, and the fore and aft transverse hips of each bin shall member to the longitudinal hip and the bin sides. There shall be 8 gate openings in each bin. Where the frames and floor plates are cut for gate openings the  $\frac{5}{8}$ -inch intercostal plate shall rivet to floor plates with angle clips  $3\frac{1}{2}$  inches by  $3\frac{1}{2}$  inches, 11.1 pounds, and also rivet to stringer plate and shell plating with  $3\frac{1}{2}$ -inch by  $3\frac{1}{2}$ -inch, 11.1 pound angle clips. At each side of the gate openings there shall be a 20-pound plate, long enough to reach between the stringer plate running fore and aft each side of the gate openings. This shall be riveted to angle bars on floor plates. Interior of all gate openings to be lined with plates  $\frac{5}{8}$ -inch thick, with angles in corners and staple angles on lower edge.

74. *Casting for Gate Frames.*—There shall be 16 steel castings for gate frames, as per plan. The casting shall be made in accordance with the detail drawing. Each casting shall be riveted to stringer plates. The surface of contact between gate frames and gates shall be faced. Lugs for gate hinges shall be cast on one side. The patterns for the gate frames, as well as for the gates, shall become the property of the United States.

75. *Gates.*—There shall be 16 cast-steel gates as per drawing. Lugs shall be cast on each gate for hinges. There shall also be cast near the center of each gate a lug to connect to the rod used to close and open the gates. On all wearing edges of gates rivet a steel bar as shown, making close joints at corners.

76. *Bin Plating.*—The plating in the bins shall be as shown on section. The top of hips shall be covered with

a 4-inch by 4-inch by  $\frac{1}{2}$ -inch angle, riveted to hip plating. There shall be at each corner of each bin a 4-inch by 4-inch by  $\frac{1}{2}$ -inch angle riveted to bin plating.

77. *Riveting in Bins and Hips.*—All rivets entering into the construction of the bins shall be of  $\frac{3}{4}$ -inch diameter, with countersunk heads in bins, convex.

78. *Foundation for Sand Pumps.*—The foundation for sand pumps shall be constructed as shown on plate No. 2. Under the center of each crank of the pumping engine there shall be a solid wrought-iron stanchion, 3 inches in diameter, riveted to beam and floor plates. The beams shall be covered with a  $\frac{1}{2}$ -inch plate, riveted to beams, and to bulkhead by angle bar 4 inches by 3 inches, 11.1 pounds. Put in other stanchions as may be required.

79. *Gate Mechanism.*—The gate mechanism for opening and closing the gates shall consist of two plates connecting to lug on gates, and to a wrought iron rod 3 inches in diameter. The exact length of the plates and rods will be determined during the construction of the ship. A guide shall be placed over the center of each gate opening. The guide shall consist of steel casting with cap holding the 5-inch pipe encasing rod firmly. The 3-inch diameter rod shall have at the top a  $\frac{1}{2}$ -inch square faced thread 1-inch pitch. This shall pass through a large cast iron nut, which nut shall form the hub of an operating wheel made of  $1\frac{1}{4}$ -inch and  $\frac{3}{4}$ -inch gas pipe. The casting in which this nut revolves shall be of cast iron, and be in halves bolted to a  $\frac{3}{4}$ -inch plate. There shall be girders, as shown on the drawing, riveted to deck beams and coaming by angle bars 4 inches by 3 inches by 11.1 pounds. On the hub there shall be mounted a worm wheel, engaging a worm on a side shaft as shown. This shaft shall be operated by a reversible engine with double 8-inch by 8-inch cylinders. There shall be one engine for each bin arranged to operate all the gates or those on either side.

80. *Overflows.*—These shall be constructed as per drawing. They shall be built of  $\frac{3}{8}$ -inch steel, and shall be connected to bin and shell plating by angle bars 4 inches by 3 inches, 11.1 pounds. The connections shall be made water tight. The hull plating at the overflows shall be reinforced by a plate at least 4 feet by 4 feet, 22 pounds.

81. *Gates for Overflows.*—There shall be eight gates provided for lower overflows. These gates shall be held in position by two plates forming a groove. The operating mechanism of these gates shall be similar to that of the sand bin gates, except no steam gear, and shall be made as shown by the drawing.

82. *Coaming Around Bins.*—There shall be a coaming around the bins, consisting of a  $\frac{3}{8}$ -inch plate, about 30 inches high, riveted to main deck stringer plate on sides and to steel deck across ends by 4-inch by 3-inch, 11.1 pound angle. The top of coaming shall be finished with a 3-inch angle. Sheath house at forward end of after bin with 5-pound plate to under side of windows, and make watertight.

83. *Cementing.*—The entire inside bottom of the dredge to the top of the floors, the inside of the engine room tank, fore and after peak tanks and surfaces of the chain lockers shall have a coating of Bitumastic solution and a coat of Bitumastic enamel, or other preparation of equal value approved by the Engineer.

84. *Painting.*—All surfaces of steel inside of the vessel, not cemented, and outside of the hull above the light water-line shall receive four coats of paint, the last coat tinted as directed; this coat shall be put on after the trial of the dredge (See Par. 234). Red lead for the first two coats, white for the last two. All houses, masts, ventilators, derricks, windlass, capstan, rails, skylights and canvas covers on top of houses, shall receive three coats of lead,

tinted as directed. Inside of houses shall be finished with one coat of shellac, and two coats best spar composition. Ceilings in all rooms to be finished in white, three coats. In the quarters on lower deck, the sides and deck overhead shall be covered with granulated cork. This shall receive three coats of white lead. Draft figures to be colored as directed.

85. *Below Water Painting*.—All the exposed surface of the vessel and appurtenances below the light water shall receive four coats of red lead paint. The last being put on after the hull is dry and in dry dock. Each coat shall dry 24 hours before the next is applied on the vessel put in water.

86. *Pilot House, Captain's and Inspector's Rooms*.—These shall be built as per plan. Sills shall be of pine, 4 inches by 5 inches; studs, spruce, 3 inches by 4 inches; carlins, pine, 3 inches by 4 inches; plate, pine, 4 inches by 6 inches. Outside sheathing to be of Michigan pine, 3 inches wide  $\frac{7}{8}$ -inch thick; to run fore and aft below belt rail, above belt rail up and down, decking 3 inches wide  $\frac{7}{8}$ -inch thick Michigan pine; water batten 2 inches by 5 inches of pine; drip plate of pine,  $1\frac{3}{4}$  inches by 6 inches. Inside sheathing of oak,  $1\frac{1}{2}$  inches by  $\frac{7}{8}$ -inch. Floors to be of oak. Inside sheathing, outside sheathing, decking and floors to be T and G. There shall be at least ten holding-down bolts,  $\frac{3}{4}$ -inch. Overhang of this house to be 18 inches. Floor of pilot house to be covered with a removable oak grating. All nails and bolts in pilot house to be of brass.

87. *Upper Boiler Room*.—The upper boiler room shall be built as per plan. Sills shall be of Georgia pine, 6 inches by 9 inches; studs of spruce, 4 inches by 5 inches; carlins of Oregon pine, 3 inches by 5 inches; plate of pine, 4 inches by 6 inches; decking, Michigan pine, 3 inches by

$\frac{7}{8}$ -inch; water batten 2 inches by 6 inches pine, drip plate,  $1\frac{3}{4}$  inches by 6 inches, pine. Inside sheathing to be of cypress or Oregon pine, 3 inches wide,  $\frac{7}{8}$ -inch thick. Outside sheathing to be of Michigan pine, 3 inches wide by  $\frac{7}{8}$ -inch thick. Decking, inside and outside sheathing shall be T. and G. Boiler room to be covered at deck with wrought-iron grating. Vise bench, store rooms, shelves and lockers to be placed as shown.  $\frac{3}{4}$ -inch holding-down bolts in this house to be placed where directed.

88. Bolt Shelf and Lockers.—The bolt shelf shall be placed where shown. It shall be of pine 6 feet long, and shall extend from top of house to within 36 inches of floor. It shall be 12 inches deep and fastened to battens. The shelf shall be divided into one-foot square places, to hold the different size bolts. Each division shall be  $\frac{3}{4}$ -inch thick and 1 foot long. There shall be one locker, built, fitted with doors, having locks. This shall be built of cypress or pine, and extend from top of house to deck, and shall be 6 feet wide and 12 inches deep. The locker shall have 5 shelves of  $\frac{3}{4}$ -inch cypress. Across the front of the shelves there shall be a batten to prevent tools from falling out.

89. *After House*.—This shall be built as per plan. The sills shall be of Georgia pine, 6 inches by 9 inches; studs, spruce, 4 inches by 5 inches; plate, pine, 4 inches by 6 inches; carlins, pine, 3 inches by 5 inches; decking, Michigan pine, 3 inches by  $\frac{7}{8}$ -inch thick; water batten, pine, 2 inches by 6 inches; drip plate,  $1\frac{3}{4}$  inches by 6 inches; outside sheathing, Michigan pine, 3 inches wide,  $\frac{7}{8}$ -inch thick; inside sheathing, oak,  $1\frac{1}{2}$  inches wide,  $\frac{7}{8}$ -inch thick. All inside and outside sheathing of houses to have chamfer. Decking, inside and outside sheathing, also floors, shall be T and G. Carlins in this house to extend to main rail, and shall be supported by iron stanchions,  $1\frac{1}{2}$  inches diam-

eter, from rail to carlins, placed where directed. There shall be  $\frac{3}{4}$ -inch diameter holding-down bolts, as required.

90. *Galley*.—A dumb waiter, about 18 inches by 24 inches, shall be built in the galley; also all the necessary shelves, racks and dressers shall be placed in the galley and store rooms, all as hereinafter described. One porcelain-lined sink, 18 inches by 24 inches, by 10 inches deep, with pump connecting to fresh water tank, shall be placed in the galley. This sink shall not be enclosed. The bulkhead back of the sink shall be covered with sheet copper from the deck to a point 2 feet above the sink, and 1 foot longer than the sink and drip board. Put in brass steam pipe for heating the water, noiseless discharge end. Dumb waiter to be hung on braided sash cord, over brass pulleys to counterweight. Put in Born or equal 8 hole range, complete with coal hod, tools, etc., for burning soft coal.

91. *Dish Racks*.—In the galley there shall be a dish rack located as directed. It shall be constructed of oak. There shall be 15 divisions in it of dimensions to accommodate the different size plates, platters, saucers, cups, mugs, vegetable dishes, etc. The sides and bottom of the rack shall be  $\frac{7}{8}$ -inch thick, the shelves and partitions,  $\frac{5}{8}$ -inch thick. There shall be a neat moulding of oak around all the openings for dishes.

92. *State Rooms*.—All state rooms shall be provided with one or two berths, as per plan, with 4 drawers under lower berths, one enameled washstand, not inclosed, with basin, 12 inches in diameter. Drips from basins in state room, bath room, and from sink in galley, also scuppers in toilet rooms, shall run overboard each side of ship. All lockers in state rooms shall have one shelf with 6 heavy brass hooks. All keys to doors shall have brass tags.

93. *Doors*.—All outside doors shall be of Michigan pine  $1\frac{3}{4}$  inches thick, with four raised panels. Outside doors

shall have 3 heavy brass strap hinges each, 1 heavy brass lock, drop handle outside, knobs inside. Inside doors shall be of the same material as the finish in the room, and shall have raised panels. All inside doors shall have brass butts and brass locks of an approved pattern. All doors shall be fitted with brass buttons, catches and hooks where necessary. All drawers and locker doors shall have brass locks. Drawer pulls shall be of polished brass. Screen doors, copper wire, same finish as room, shall be placed in all state rooms, galley and mess rooms. These doors shall be provided with spring hinges, buttons, catches and hooks, all of brass. Door sills shall be covered with sheet brass. Fire room door sills shall be covered with No. 18 galvanized iron, also jamb of doors 3 feet high. Doors to have rubber-tipped stops.

94. *Windows*.—Windows in pilot house shall have sash of hard wood, finest quality of double-thick glass, fitted with weights and pulleys. All other windows shall be of same finish as room, glass finest quality double thick, 18 inches by 24 inches. Windows to drop into pockets. All windows shall be fitted with catches and lifts of brass. Screen windows shall be furnished for all state rooms and mess rooms and galley; sash, Michigan pine; screen, copper wire 18 mesh. Windows to be fitted with buttons and catches of brass.

95. *Blinds*.—All state rooms, mess rooms, galley and officers' bath room, shall be furnished with inside blinds, of same finish as room. They shall slide up and down, and shall be fitted with buttons and catches of brass.

96. *Cushions*.—Red corduroy cushions of durable, first-class, approved quality shall be furnished for seats in pilot house.

97. *Covering*.—All houses shall be covered with No. 3 cotton duck canvas, fastened with  $\frac{3}{4}$ -inch copper tacks; canvas to have 3 coats of paint, and be laid in paint.

98. *Scuppers.*—The after house shall have six 1½-inch scuppers leading from top of house to deck. The midship house shall have sixteen 1½-inch scuppers leading from top of house to deck. The pilot house shall have two 1½-inch scuppers leading from top of house to top of captain's room. House after pilot house shall have two 1½-inch scuppers leading from top of house to top of house below. The upper part of scupper to be of lead, and be continued to the deck by galvanized-iron pipe same size. There shall be eight scuppers on the bridges with pipe leading to deck.

99. *Bridges.*—There shall be four bridges built as shown, supported by forged stanchions.

100. *Railing around Houses.*—There shall be a galvanized-iron rail around amidship and after houses and bridges. The stanchions of wrought iron 3 feet high, spaced about 4-foot centers, with 3 rows of galvanized-iron pipe running through them. They shall be fastened to water batten with four lag screws in each foot.

101. *Heaters.*—All sleeping rooms, mess rooms, toilets and bath rooms, shall have approved iron heaters. The pilot house shall have a brass heater. Drips from all heaters to run into trap, trap to overflower into filter box. All iron heaters to be covered with aluminum paint.

102. *Tables.*—All tables in the mess room shall be of oak, they shall be secured to the deck and the tops have a batten around outer edges.

103. *Firemen's and Sailors' Quarters.*—These shall be located aft on the lower deck as shown and shall be reached by a companion way entrance in after house. Floors for toilet and bath rooms raised as shown. The berths to be two in height, have pipe standees and rails, wire bottoms and all finished in white enamel.

104. *Petty Officers' Quarters.*—These shall be arranged

on the lower deck forward as shown. Berth shall be similar to those specified, for the firemen and sailors with lockers as indicated. Basins to be about 12 inches diameter, enameled iron, to drain outboard. Bath tub to be 4 feet 6 inches long, roll rim, enameled iron. Water closets to be cast-iron hopper, enameled inside, with oak rim attached. The closets, bath tub and basins shall have independent discharges through the ship side. On the discharges from the tubs and closets put quick opening gate valves inside the hull, operated by suitable and easily accessible levers. On the discharge of each basin above the deck put a gate valve. All to be so arranged that if desired the ingress of water from the outside can be prevented. The discharge from the basins to unite below deck into one discharge pipe.

105. *Sailors' and Firemen's Toilets.*—These shall have closets as above specified. The bath room shall have an overhead spray, and the walls of the bath room shall be lined with copper. The closets and bath shall discharge overboard, and on each discharge there shall be placed, inside the hull, a quick opening gate valve operated by an easily accessible lever. All toilets and bath rooms shall have a scupper in the floor with gate valve and pipe leading outboard—for washing out.

106. *Officers' Bath and Toilet.*—The toilet shall be of earthen ware, J. L. Mott, Pl. 709 Y or equal, with double oak seat, with water connection for flushing; bath tub, 5 feet long, roll rim enameled; both to discharge overboard below the sheer strake. Both the officers and petty officers' bath to be supplied with cold water and a steam water heater.

107. *Hardware.*—All hardware shall be extra heavy, of brass polished and shall be approved before putting up; doors shall have rim locks with knobs inside and drop

handle outside, hook to hold door open, and heavy strap hinges. Panels of screen doors shall be fitted with bronze wire cloth 18-mesh. These doors shall be fitted with spring hinges, catches and hooks, screen windows to be held in place by brass buttons. Sash to have brass lifts, and inside blinds to have lifts and catches working on a cast-brass rack on frame holding blind at any height. All drawers to desks shall have brass locks, flat keys.

108. *Chafing Plates*.—At joints of the suction pipe where shown, put  $\frac{5}{8}$ -inch chafing plates, 24 inches wide, located so as to protect the hull from wear. Build guard of channel to keep drag from side of ship.

109. *Dry Docking*.—After the preliminary trials and just before completion, the dredge shall be placed in dry dock, when, after cleaning, the last coat of paint above the light water line and one coat below this line shall be put on.

110. *Refrigerating Room*.—This room shall be built as shown. The insulation on all sides, top and bottom, shall be made as shown. In one portion of this room there shall be constructed an ice box capable of holding 800 pounds of ice. The door to this box to open into entry. In the refrigerating room put up 6 heavy meat rods with two hooks on rollers on each, and shelves as directed. In this room also put two 20-gallon tanks of sheet zinc with covers. These are to hold drinking water. A pipe from one of these tanks shall lead to the officers' mess room and terminate in a faucet. A pipe from the other shall lead to the petty officers mess room and terminate in a faucet. These pipes, where they are outside of the refrigerating room, shall be thoroughly insulated.

## PROPELLING MACHINERY.

## TESTS OF MATERIALS.

111. *Test for Cast-iron.*—From each heat of cast iron a tensile piece shall be cast in the presence of the inspector. A test coupon will be attached to each of the larger castings. The test pieces for cylinders, valve chest linings, packing rings and main guides shall show a tensile strength of at least 25,000 pounds per square inch. All other castings will show a tensile strength of 20,000 pounds per square inch.

112. *Test for Cast-steel.*—One test coupon will be required from all steel castings. The tensile strength of all castings shall be at least 60,000 pounds per square inch, with an elongation of at least 24 per cent in 2 inches for all castings for moving parts of the machinery, and 20 per cent in 2 inches for other castings. The sectional area of test specimens shall be at least  $\frac{1}{2}$ -inch. The elastic limit shall be one-half of the ultimate strength.

113. *Bending Tests for Cast-steel.*—From each large steel casting or from each heat of smaller castings, a bending bar, 1-inch square, shall bend cold without showing cracks or flaws, through an angle of 120 degrees for moving parts of machinery and 90 degrees for other castings, over an inside radius not greater than  $1\frac{1}{2}$  inches.

114. *Tests for Shafting, Steel Columns and Reverse Shaft.*—These shall be made of open-hearth steel. A tensile test specimen shall be taken from each. They will have a length of 2 inches between measuring points, and a section area of at least  $\frac{1}{2}$ -inch. Each of these test pieces shall show a tensile strength of 60,000 pounds per square inch and an elongation of 28 per cent in 2 inches, with elastic limit one-half the tensile strength.

115. *Quenching and Bending Tests for Shafting, Col-*

*umns, etc.*—A bar  $\frac{1}{2}$ -inch thick and from  $\frac{1}{2}$  to 1-inch in width will be taken from each forging and must stand bending double over an inside diameter of 1 inch after quenching in water at 82 degrees F. from a dark cherry red heat in daylight, without showing cracks or flaws.

116. *Tests for Piston, Connecting and Eccentric Rods, Valve Stems, Crossheads, and Main Links.*—These shall be of open-hearth steel. All test specimens shall be cut from the forging and shall have a length of two inches between measuring points. Each of these specimens shall show a tensile strength of 80,000 pounds per square inch and an elongation of 24 per cent in two inches. The sectional area of specimen shall be at least  $\frac{1}{2}$ -inch. Elastic limit one-half the tensile strength.

117. *Bending Tests for Piston, Connecting and Eccentric Rods, Valve Stems, Crossheads, and Main Links.*—One bar  $\frac{1}{2}$ -inch thick, cut from the upper end of each forging, must stand bending double when cold to an inner diameter of 1 inch without showing cracks or flaws.

118. *Miscellaneous forgings.*—The connecting rod bolts, main bearing bolts, eccentric rod bolts and studs, and link and valve stem bolts, shall be subjected to the same tests as those specified for piston rods. Other miscellaneous steel forging for machinery shall be subjected to the same tests as those specified for shafting. Coupons shall be cut from the end of forgings, midway between center and outside. This applies to all forgings, shafting, rods, etc.

#### GENERAL DESCRIPTION.

119. There shall be two vertical, inverted, direct acting, open frame, surface condensing, fore and aft compound engines, with cylinders 22 inches and 46 inches in diameter, and a common stroke of 30 inches, driving four-bladed

cast-iron propellers 8 feet 6 inches in diameter, and 14 feet pitch. Engines to exhaust into condenser and also have atmospheric exhaust. Template to which the propellers are bored shall be furnished. Column and bed plate castings shall be smooth and free from surface defects.

120. *Cylinders.*—The high pressure will be 22 inches diameter, made of hard, close-grained cast-iron. All the necessary lugs and flanges are to be cast on for required attachments. The low pressure cylinder will be cast separate from the high pressure cylinder, and will be 46 inches in diameter. The internal parts of the cylinders and valve chests shall be pickled to remove scale and sand. The H. P. cylinders of main and pumping engines shall be tested by internal water pressure of 200 pounds per square inch, and the L. P. cylinders by a pressure of 100 pounds.

121. *Counter Bore.*—The counter bore of each cylinder will be  $\frac{1}{4}$ -inch larger than the diameter of the cylinder, and of sufficient length, top and bottom.

122. *Clearance.*—There will be not less than  $\frac{1}{4}$ -inch clearance from top of piston to bottom of cylinder cover, and not less than  $\frac{5}{8}$ -inch clearance from bottom of piston to bottom of cylinder.

123. *Cylinder Relief Valves.*—On each high pressure cylinder shall be two adjustable spring relief valves  $1\frac{1}{2}$  inches in diameter. On each low pressure cylinder there shall be two adjustable relief valves 3 inches in diameter. They shall be of composition, finished all over.

124. *Covering.*—Cylinders and valve chest to be covered with magnesia blocks and lagged with the best quality of Russia iron, neatly finished with brass bands and round headed brass screws.

125. *Cylinder and Chest Covers.*—Covers to be made of proper depth, strongly ribbed and filled with magnesia. A cast-iron covering plate to be securely fastened to each

cover. Covers with turned grooves to be polished and free from all imperfections, eye bolts to be fitted for lifting.

126. *Balance Cylinder*.—The low pressure steam chest shall have a balance cylinder cast on cover with a bore of about 8 inches in diameter. Cylinder to be polished. All necessary brass piping from balance cylinder to condenser to be fitted in place.

127. *Stuffing Boxes*.—The stuffing boxes of each cylinder will be cast separate, and packed with approved metallic packing. The stuffing boxes are to be provided with composition bushings, and secured by a sufficient number of studs to make a steam tight joint. The glands shall be of composition.

128. *Piston Valve*.—The high pressure piston valves will be of cast iron, made with approved packing rings. The followers of the valves will be secured in place by steel stud bolts with wrought-iron nuts and brass split pins. The packing rings will be of hard cast-iron, turned and fitted in an approved manner.

129. *Low Pressure Slide Valve*.—The low pressure valve will be a double ported slide valve of the usual form, and will be made of cast iron. The face of the valve will be finished to a plane, all edges to be finished.

130. *Pistons*.—Pistons shall be of the best quality of cast-steel, for L. P. cast iron for H. P., conical. Packing rings to be of hard cast-iron set out by steel springs of approved pattern. The followers to be secured to pistons by shoulder studs of mild steel, with case hardened nuts, brass split pins to be used on every stud as a locking device. A suitable number of eye bolts to be furnished for lifting followers.

131. *Piston Rods*.—Piston rods to be made of forged steel,  $4\frac{5}{8}$  inches in diameter. Each end will have a shoulder, and taper fit into piston and crosshead block, and will

be securely fastened by nuts about 4 inches deep, pins to be used as a locking device.

132. *Crosshead Blocks and Guides.*—Crosshead blocks to be made of forged steel, in one piece. The blocks to be about 8 inches square, finished all over. Crosshead will be made of cast steel and securely fitted to block by four through bolts. The ahead and backing sides to be filled with strips of Parson's white brass, or equal, not less than 7/16-inch thick. Area of contact to be such that pressure does not exceed 70 pounds per square inch.

133. *Crosshead Guide.*—There shall be a crosshead guide of cast iron fitted to each column of engines, and designed for water circulation.

134. *Connecting Rods.*—Connecting rods to be of forged steel, with fork at crosshead and a tee at crank pin end. There shall be furnished at each end a complete set of brasses, butt end to be fitted with Parson's white brass, or equal, and securely fitted with bolts. Bolts to be of forged steel. They shall be fitted with stops to prevent them from turning while being set up. The nuts for these bolts shall have a collar turned on them, and fit into recesses on rods, which will have set screws so arranged as to hold nuts in place when set. Rods to be finished all over.

135. *Valve Stems and Guides.*—Valve stems to be of forged steel, not less than  $2\frac{1}{2}$  inches in diameter in body and  $2\frac{3}{4}$  inches in guide, with tee heads forged on their lower ends and fitted complete with bolts and nuts of steel, for taking up wear on link block pin. Valve stem guides shall be of the yoke type, securely bolted to pads under each cylinder, and provided with suitable brasses and liners for taking up the transverse wear. All connections to be of marine type.

136. *Links and Link Blocks.*—The links will be of the Stevenson double bar type, about 4 inches wide and  $1\frac{1}{4}$

inches thick, and made of forged steel. Link blocks to be of forged steel, with separate composition gib fitted on each side of each link. Links and blocks to be polished all over.

137. *Eccentric Rods, Sheaves and Straps.*—The eccentric rods will be made of forged steel, finished all over. The lower end will be secured to the strap, and will have a tee forged on to receive two steel stud bolts, which are to be tapped into strap. The upper end of the rods will be forked and have composition brasses, marine type, securely bolted as shown. Eccentric sheaves for high pressure engine shall be cast solid and bored out to fit shaft. The sheaves for low pressure engine will be cast in halves and securely bolted when in position. Eccentric straps will be lined with Parson's white brass, or equal. Sheaves to be made of best grade of cast iron; straps of cast-steel.

138. *Suspension Links, Reverse Shaft and Brackets.*—The suspension links shall be made of forged steel. Reverse shaft to be 4 inches in diameter, of forged steel, and polished all over. Brackets to be bolted on back columns for reverse shaft. Bearings for reverse shaft to be lined with Parson's white brass or equal.

139. *Back Columns.*—The back columns will be of cast iron. Necessary flanges and lugs will be attached for fitting cylinders and guides to same by a sufficient number of fitted bolts.

140. *Front Columns.*—The cylinders will be supported on one side by 3 forged steel columns, 4½ inches in diameter, with heavy flanges on top and bottom. Columns to be polished and secured to cylinders and bed plate by fitted bolts.

141. *Bed Plates.*—These shall be made of cast-iron, each in one casting, with four main bearings, of tough composition, filled with Parson's white brass, or equal, and so

arranged that the lower half of the box can be rolled upward from under the shaft and removed when necessary. They are to be held in position fore and aft by suitable flanges. Bearing caps to be made of cast-steel, with opening in top for feeling and oiling journals. The main bearing bolts shall be of forged steel. All necessary eye bolts for removing parts shall be furnished. The engine bed-plate will be secured to the foundation by holding down bolts  $1\frac{1}{8}$  inches in diameter body bound and spaced 10 to 12 inches between centers.

142. *Reverse Cylinders.*—A steam reversing engine, having a cylinder 9 inches in diameter by 14-inch stroke, with suitable flanges shall be securely bolted to engines. The working parts will be protected from shock by an approved cushion arrangement. Provide also a hand reversing gear. The steam cylinder shall have a valve, worked by a hand lever on a notched quadrant at the working platform, in conjunction with a floating lever. The arrangement will be such that the reversing piston shall follow the motion of the hand lever, and be firmly held when stopped. Fit drain pipes to the cylinders.

143. *Throttle.*—Throttle valves to be of the balance type, and will be fitted to steam chest with all of the necessary connections leading to the quadrant. The amount of opening will be regulated, or the valve firmly closed, by means of hand wheels and screws working in yokes on the valve bonnets.

144. *Turning Gear.*—Worm wheels for turning the shafts shall be provided with ratchet and lever of approved design.

145. *Telltale.*—Carry telltales from each engine to top of house to show revolutions.

146. *Starting and Reversing Gear.*—Suitable gear from throttle valve drain and reversing engine will be furnished.

Operating levers, quadrant, spring catches, and pull rods, shall be polished. Throttles of engines to be operated from top of house, as well as engine room. Engine room throttle to have locomotive latch.

147. *Drain Gear*.—Cylinder, chests and pumps will be provided with asbestos packed cocks, securely attached and led to condenser. All recesses in stop valves, fittings, castings, etc., shall be drained. Suitable drain levers and all attachments shall be furnished and located near starting and reversing levers.

148. *Clearance*.—After the engine is set up in place, adjusted and connected, the volume of clearance at each end of each cylinder shall be carefully measured, and the result plainly marked on some conspicuous part of the cylinders. Marks will also be made on the crosshead guides showing the positions of the pistons when the clearances were measured, and also showing the striking points. This applies to propelling and pumping engines.

149. *Indicator Gear*.—The cylinders will be furnished with the necessary rigging, piping, angle valves, three-way cocks, etc., and all required attachments for taking indicator cards.

150. *Crank Shaft*.—The crank shaft shall be forged in one piece, and made of the best quality of steel,  $10\frac{1}{4}$  inches in diameter. The crank pins will be 10 inches in diameter by about 11 inches long. Couplings to be forged on shaft. Tapered bolts of proper size fitted to couplings. Crank shaft to be finished all over. Chamfer on crank webs to be turned on.

151. *Thrust Shaft*.—The thrust shaft to be of forged steel, finished all over,  $10\frac{1}{4}$  inches in diameter, and provided with six thrust collars forged on. Coupling bolts will be the same as specified for crank shaft.

152. *Thrust Bearing*.—The thrust bearing will consist

of a cast-iron pedestal, which will be securely bolted to the main engine foundation plate by steel bolts in reamed holes. The forward end of this pedestal will be continued so as to bolt to lugs on main engine bed plate. The thrust will be taken by cast-steel horseshoe collars, lined with white metal and mounted on two Tobin bronze rods, upon which they will be kept from endwise motion by steel nuts screwed on the rods. The base of these bearings shall form a receptacle for oil and shall be cast with recess for water circulation, and connected to water piping. Put half stuffing boxes at each end to retain oil and galvanized covers over bearings.

153. *Intermediate Shaft.*—The intermediate shaft shall be of forged steel, finished all over, 10 inches in diameter, with flangs forged on, and coupling bolts as specified for crank shaft. Faces of couplings to be made male and female.

154. *Tail Shaft.*—The tail shaft shall be in one piece, finished all over,  $10\frac{1}{4}$  inches in diameter, length to be taken from work. Coupling on this shaft to be of cast-iron. The after end of this shaft shall be 11 inches diameter.

155. *Spring Bearings.*—They will be of cast-iron with faced flanges secured to the foundation by forged steel bolts. The brasses shall be fitted so that they can be easily removed and renewed. The bearing surfaces shall be accurately bored, and faced with white metal strips, dovetailed, and hammered in place. The bearings will be supported on an approved and suitable foundation, built up of plates and angles from the floor plates.

156. *Stern Pipes for Shafts.*—The after floors through which stern pipe passes shall be properly bored to receive the stern pipe. The pipe shall be of cast iron turned at the bearings, and with faced joints pipe to be thoroughly fastened in place. At fore and after ends of these pipes

insert a composition sleeve lined with white metal. On the inside and end put double stuffing box.

157. *Shaft Struts.*—The shaft struts shall be placed where shown of cast-steel or a cast-steel hub with forged arms. These arms shall be egg-shaped in section. The shaft between the strut and stern tube shall be enclosed in a pipe made in halves. These halves shall fit closely together and to the castings at the ends and be made tight by gaskets.

158. *Oiling.*—At a convenient place in the after hold put two oil or grease cups for each stern tube. The cylinders of these cups to have a capacity of about 2 quarts. Carry a galvanized-iron pipe from the cups to the stern tube and bearing as shown. Put valves in these pipes just below the pumps. Carry a small air pipe from near the forward end of the stern tube to near the cups, and put a cock on the end. Where these pipes pass through the flats, the junction shall be made watertight. Cups to have screw and piston.

159. *Lubrication.*—To the high and low pressure cylinders there shall be fitted one brass multiple feed oiler, equal in every respect to the "Michigan." These oil reservoirs will have a capacity of not less than two quarts each, and will be provided with a filler at their tops. Pipes will lead from connections on reservoirs to all moving parts of the engine. Each steam chest will be fitted with an approved hand oil pump. Each main crank will be oiled by cups carried on the crosshead, taking oil from overhead. Each main crosshead journal will take oil from an overhead wick cup. Each crosshead guide will be oiled by draggers taking oil from a cup at the bottom. Approved composition oil cups with screw tops will be fitted for oiling main links. The main bearings, thrust bearings, and spring bearings will each be provided with compres-

sion grease cups of an approved design and of  $\frac{1}{2}$ -pint capacity. The main bearings will also have connections to the lubricators. There will be approved means of oiling pistons and valve stem rods. The eccentrics will also be provided with efficient means of oiling. All the working parts for which oil cups are not specified shall be provided with oiling gear of an approved design.

160. *Trolleys.*—Overhead trolleys shall be provided for main engines, pumping engines, sand pumps and condenser heads.

161. *Water Service.*—There shall be brass water service pipes for each engine, main guides, main bearings, thrust bearings, crank pins, spring bearings.

162. *Oil Drips.*—Oil drips of sheet brass shall be fitted where oil can accumulate, and to have drain cocks. Drip pans shall be placed under all pumping, propelling and auxiliary machinery where oil can accumulate or drip.

163. *Bypass.*—Fit bypass to low pressure cylinders taking steam from main steam pipe.

164. *Air Pump.*—One twin-cylinder, beam air pump, 12-inch diameter steam cylinder, 25-inch diameter air cylinder by 18-inch stroke, or of dimensions giving equal efficiency. Piston rods and buckets to be of composition. Air pump valves to be of brass. Pump to be Blake, Worthington, Davidson or other equally good. Pump to have head valves.

165. *Condenser.*—Surface condenser of approved type. Solid drawn brass tubes, tinned inside and out. Brass ferrules with shoulder. Tube sheets of brass. Heads, cast-iron; shell, steel; central supporting plate of brass. To have not less than 4,500 feet cooling surface. Discharge pipe of copper, with valve at ship's side. Cleaning doors top and bottom. Condenser shall be covered with magnesia and galvanized iron. Condenser shall be placed

higher than the air pump. Place on the condenser a soda cock and copper tank of 2-gallon capacity, and on the air pump suction pipe a 1-inch nozzle for boiling out. Connect the tube plates by 3 tie-rods in brass tubes. Put large perforated baffle plate over tubes. Before erecting in dredge, condenser shall be subjected to an internal hydrostatic test of 20 pounds per square inch.

166. *Circulating Pump.*—The circulating pump to be of centrifugal type with brass shaft and runners and operated by an independent engine. Pump discharge to be 10-inch and of sufficient capacity. To have suction to sea and bilge, with independent discharge overboard; suction to be of copper, with copper strainer, located well forward of bin overflows.

167. *Auxiliaries.*—The circulating pump, and electric light generators shall be capable of exhausting into the condenser, heater or atmosphere, all the other auxiliaries shall exhaust into either the atmosphere or heater. All auxiliary machinery shall be mounted on yellow pine pads 2 inches thick; pads to rest on the steel foundations.

168. *Ladders.*—These will be fitted wherever necessary or directed for reaching the engine or fire room from deck and for reaching the various platforms, passages, and parts of machinery.

169. *Boiler and Bilge Pumps.*—There shall be two vertical, duplex, brass lined pumps, of Blake, Worthington, Davidson, or other equally good type, 9 inches by  $5\frac{1}{2}$  inches by 10 inches, or of equivalent dimensions. To draw from filter, sea, bilge, or either water tank, and to discharge into boiler, overboard, or through hose at sides of houses, or into either tank. Pumps to be so connected that one can work in salt water while the other is working in fresh water.

170. *Heater.*—There shall be one multi~~oil~~, vertical,

feed water heater, 32 inches diameter, with proper connections. Coils to be of copper pipe. Heater shall be covered with magnesia and Russia iron. To be tested to 50 pounds per square inch, internal hydrostatic pressure.

171. *Service Pump*.—There shall be one brass lined duplex pump, steam cylinder  $4\frac{1}{2}$  inches diameter, water cylinder  $5\frac{1}{2}$  inches and stroke  $4\frac{1}{2}$  inches or equivalent dimensions. This shall draw from the tanks or sea, and discharge into pipe leading to the various toilet fixtures.

172. *Pressure Pump*.—A pump similar to that above described shall be installed, drawing from the tanks or sea, and discharging into the water service to the engines and pumps.

173. *Filter*.—There shall be one filter about 10 feet long, 2 feet 6 inches square, with four partitions and cover.

174. *Syphons*.—Six  $2\frac{1}{2}$ -inch syphons shall be furnished and fitted in place.

175. *Hand Pump*.—There shall be an approved hand pump, located in lower engine room where directed, fitted complete to draw from the sea, tanks, or bilge or boilers, and discharging into the auxiliary feed pipe or overboard, provided with all necessary pipes, valves, etc. It shall have a detachable hand lever, which shall be stowed in brackets at a convenient place. This is not to pump against boiler pressure.

176. *Injectors*.—Two Korting injectors, of ample size or other equally good, shall be furnished, with connection for hose for washing down.

177. *Centrifugal Bilge Pump*.—This shall have a cast-iron shell with brass pump shaft and runner, 4-inch suction and discharge pipe, and be connected to an engine of proper size. This pump shall discharge out board and shall have 8 suctions to bilge, each protected by a strainer, and

so placed that any portion of the hull can be drained. This suction pipe shall be independent of that for the other pumps. The pump shall have sufficient power to discharge the bilge water when the dredge is deep loaded.

178. *Fire Pump.*—One brass lined fire pump, 14 inches by 7 inches by 10 inches, or of equivalent dimensions; vertical, Blake, Worthington, Davidson, or any other equally good. This pump shall have a suction to the bilge; an independent valve at the ship's side; it shall discharge overboard or through fire hose at side of house; and to draw from sea, bilge or tanks, six  $2\frac{1}{2}$ -inch fire plugs shall be located on main deck as directed. Furnish two reducers for 1-inch hose on deck.

179. *Relief Valves.*—Relief valves shall be attached to the discharge of all pumps, discharging into the suction pipe.

180. *Boilers.*—There shall be four boilers, Scotch return tubular type 14.5 feet diameter and 12 feet long. To have three 42-inch corrugated furnaces each,  $3\frac{1}{4}$ -inch tubes, well rolled in tube sheet and ends beaded over. Boilers to have butt straps inside and out, and to conform in every respect with the requirements of the United States Inspectors of Steam Vessels, for a working pressure of 140 and 160 pounds for the furnaces. Dry pipes shall be placed in each boiler, 8 inches in diameter, and to have two hundred (200)  $\frac{3}{4}$ -inch holes or slots of equivalent area. Uptakes of all boilers to come together, and to have one stack of nine feet inside diameter. There shall be an air space of 3 inches and an outer stack provided 9 feet 6 inches in diameter. Both stacks to extend above top of house as shown and to have six wire guys  $\frac{5}{8}$ -inch in diameter, each to be set up with lanyards and dead eyes. A damper shall be fitted. Air space over uptakes covered with asbestos. Covering on uptakes  $1\frac{1}{2}$  inches thick, on boiler 2

inches thick, of asbestos and magnesia; this shall be covered with No. 24 galvanized iron. Bucket racks of iron around stacks to take twelve buckets. Spring pop safety valves for each boiler. Bottom and surface blow; stand pipe with gauge glass; one 1-inch drain cock; three try cocks, and a common drain for all cocks to bilge for each boiler. Furnace bars, bridge walls, lazy bars, fitted in place. Four extra sets of grate bars, and four sets of fire tools with hooks to hang same on. Four steam gauges in boiler room. Ash pans to be fitted to all furnaces. Sheet-iron baffle plate in front of boilers to keep ashes out of bilges. Saddles to be of steel  $22\frac{1}{2}$  pounds, and fastened to hull. Braces from boiler to hull shall be furnished and fitted. Fire room floor to extend back to steel bulkhead. Steel floor plates. Four heavy ash buckets. Sixteen wrought-iron baskets suspended from braces, with zinc, shall be furnished. Wrought-iron gratings shall cover boiler hatch at main deck. All necessary hand and grab rails shall be furnished and placed where directed. Escape pipe to be placed inside of stack. Make such connections to one of the pumps that circulation can be maintained in any boiler when raising steam. Feed pipes to discharge between the curtains. Boilers shall be equipped for burning either oil or coal and so arranged that the change from one to the other can be easily made. The furnaces shall be provided with extension fronts and the burners and general system shall be the "Kirkwood" or other system approved by the Engineer. All necessary pumps, blower, heater, etc., shall be supplied, using air to atomize the oil.

181. *Donkey Boiler*.—Place where shown a donkey boiler about 4 feet diameter and 8 feet high equipped for burning coal. The stack from this shall lead into the main stack; the boiler shall be built for 140 pounds pressure, and be supplied with all necessary gages, cocks, fire tools, etc.

This boiler to be so connected that it can be used for operating the various pumps, heating system and the oil heater and burners until the main boilers are in operation.

182. *Ash Ejector*.—Two approved 6-inch hydropneumatic ash ejectors, shall be furnished and set up complete, ready for use. At the discharge end put in a removable wearing piece and at all bends in the discharge pipe thicken the outside portion and make it removable. Furnish pattern of removable piece and bends.

183. *Tanks*.—There shall be four 105-gallon tanks, with lock faucets with 4 keys, drip pan, and filling pipes from deck. Fastened in place where directed.

184. *Whistle*.—One 10-inch single chime whistle, with double pull to pilot house shall be put in.

185. *Tools*.—Install in engine room a tool board fitted with 3 monkey wrenches, 3 Stillson pipe wrenches, 3 screw drivers, and 8 open-end wrenches, hammer and pliers all finished, held in place with brass buttons. Wrenches, in racks at convenient places, shall be furnished for all nuts around engines and pumps. Set on brackets four small oil tanks of copper, 10-gallon capacity each with faucets. Furnish 12 steel oil cans, 8-ounce, six long and six short spouts, and two brass oil sets on tray five pieces each.

186. *Bells and Speaking Tubes*.—There shall be one 20-inch and one 12-inch gong in the propelling engine room, and two jingle bells, with pulls in pilot house and on operating deck leading to gongs and jingle; also a 1½-inch brass speaking tube from pilot house to engine room, with whistle at each end and a 1½-inch sounding tube of brass. Pulleys shall be used for all bell pulls. Put in also a 1½-inch speaking tube from the pilot house to the operating deck aft of the stack with whistle at each end. Pulls to starboard engine to have open handles, those to port closed. Wire to be of brass.

187. *Electric Bells.*—There shall be electric bells from captain and inspector's rooms to engineer's, mate's, steward's, and quartermaster's rooms; also from each state room to galley, with indicator. The contractor shall furnish dry battery for these.

188. *Steam Piping.*—There shall be five distinct lines of steam piping with separate stop valves near boiler; two for propelling engines, one for each pumping engine, and one for the auxiliary engines. They shall be of copper, to stand a working pressure of 160 pounds of steam, and conform to the rules and regulations of the United States Inspector of Steam Vessels. There shall be a bleeder pipe from main steam pipe to condenser. Small pipes leading from auxiliary steam pipe shall be of sufficient size to supply all small pumps and auxiliary machinery. Steam and waste pipes to heaters in all rooms except pilot house, shall be of iron, galvanized. All iron pipe shall be galvanized.

189. *Steam Separator.*—There shall be placed on the steam pipe to each main engine an approved centrifugal steam separator of ample size. This shall be supplied with gauge glass and drain to filter tank.

190. *Valves and Cocks.*—All valves shall be Lunkenheimer's or equal. All steam and suction valves to be brass, mounted; all pump, discharge, and exhaust valves to be gate valves. There shall be a combined stop and check valve close to suction and discharge of feed and fire pumps; outboard valves, iron bodies, brass mounted, brass strainers, shall be fitted to all suctions. Sea cocks and throttle valves shall be furnished by the contractor. All valves  $2\frac{1}{2}$  inches and under shall be entirely of brass.

191. *Filling Plugs.*—All tanks and oil cans shall have filling plugs on deck with screw caps and the necessary piping.

192. *Ash Chutes.*—The contractor shall furnish 3 ash chutes with brackets to fit rail.

193. *Injection Valve Seats.*—These shall all be located forward of the forward overflow of the forward bin to avoid taking sand. The plating at all openings shall be reinforced. The openings shall be covered with composition strainers with area of opening at least twice that of the valve openings. Strainers to be attached to the injection seat castings, and provided with renewable zinc protecting strips. All to be flush with plating. The valve boxes shall be provided with facings for connection of flanged steam pipe for clearing them of ice.

194. *Labels.*—All valves and cocks, except such as may be otherwise directed, shall have attached brass plates showing their use and the direction of opening, and all hand levers, quadrants, speaking tubes, electric bells and annunciators shall be similarly marked. Marks shall be deep and filled with black cement.

195. *Pipe Coverings.*—All steam and exhaust pipes shall be covered with magnesia. Number 6 cotton canvas shall be sewed on over the magnesia.

196. *Thermometers.*—Furnish 4 mercurial thermometers, Hohmann & Maurer or equal, one on suction and discharge of condenser and two on heater.

197. *Lower Engine Room Floor.*—The lower floor of the propelling engine room shall be covered with checkered steel floor plates,  $\frac{1}{4}$ -inch thick. At the sea and bilge valves the plates shall be removable.

198. *Painting.*—The engines, tanks, pumps, and boilers shall have 3 coats of white lead. All pipe covering shall be treated in the same manner.

199. *Steam Heating.*—Carry steam pipe to all heaters, putting reducing valve on line.

200. *Toilet Supply.*—All basins, closets, and baths are to be supplied with water from the place in which the dredge is working. The intake for this water shall be located well forward of the overflows of the forward bin.

201. *Refrigerating Plant.*—This shall be an approved direct expansion, automatic, anhydrous ammonia plant operated by an electric motor. The plant shall be of such size and have such a length of pipe in the refrigerating room that it will keep the temperature of the latter at 34 degrees F. when the outside air is 96 degrees in covered places, operating not more than 12 hours per day. When delivered the plant shall be fully charged with ammonia and two spare drums shall be furnished. This refrigerating plant shall be mounted on an approved steel platform in the lower hold aft of the after bin. From near the compressor carry a 12-inch galvanized-iron ventilator up through the after house and on top put a ventilating top. In the bottom end of this ventilator put an exhaust fan operated by an electric motor. The switch for controlling this motor shall be located in the engine room. The plant shall be supplied with all necessary gages, instruments, tools, etc.

202. *Gage Board.*—In the engine room mount a gage board containing one 8-day clock, chronometer lever, steam receiver and vacuum gages for propelling engines. Clocks and gages to have polished cast-brass cases, with dials about 8 inches diameter for the propelling machinery and 6 inches for the pumping machinery.

#### PUMPING MACHINERY.

203. *Finish and Tests of Material.*—The finish and tests of material shall be the same as is prescribed for the propelling machinery.

204. *Pumping Engines.*—The pumping engines shall be two in number, directly connected to the 20-inch sand pumps. Bed plates of pump and engine to be bolted together. Type of engine, vertical, inverted, compound, condensing, with cylinders, 17 inches and 36 inches, stroke

18 inches. To be provided with piston valves for high-pressure cylinder, double ported, slide valve for low pressure. Both cylinders to be fitted with relief valves, top and bottom. Crossheads to be of the flat slipper guide pattern. Crank pin brasses lined with best babbitt metal. A multiple collar thrust bearing shall be attached. Collars for thrust bearing shall be turned on shaft. Engine to be fitted complete with automatic sight feed oil service to all bearings. Oil tank brass 2-quart capacity with wick feed shall be provided, to which all sight feeds shall be attached. A complete water service shall be furnished. All places where oil can accumulate shall be lined with lead and have drain cocks. Brass fenders, edges wired, shall be placed where directed to prevent the throw of oil from cranks. Cylinders to be covered with non-conducting material, and neatly lagged with Russia iron held by brass bands. Metallic packing shall be used for piston rods, United States or other equally good. All cylinders to have indicator rigs, including one three-way cock to each cylinder. Engines to exhaust into condenser and also to have atmospheric exhaust, and have an approved shaft governor.

205. *Bells.*—There shall be two 10-inch brass gongs, located where directed, with pulls located on the bridges as directed; gongs shall be of distinctly different tone, and different from that of the propelling engines.

206. *Dredging Pumps.*—To be 20-inch, of centrifugal type, and extra heavy construction of cast-steel, especially adapted for dredging, as shown on the accompanying drawings. The interior of back head of pumps are to be fitted with renewable lining plates of steel. Pump runner to be secured to shaft by taper fit, with key and nut. Pumps to be fitted with approved air exhausters on Y-pipe. Pumps and engines shall be set as per drawing. The number of revolutions of the discs of these pumps shall be between 180 and 200 per minute while dredging. Overhead

trolleys for handling heads. Template to which pump runners are bored shall be delivered with the pumps.

207. *Y-Pipe*.—Shall be made of cast-steel as shown on drawing. This valve shall be operated from top of house, and main deck.

208. *Suction and Discharge Pipes*.—The United States will furnish at a railroad station or wharf convenient to the works of the contractor, the steel suction pipe, drags and flexible joints. These will be drilled and finished. The contractor shall pay the freight charges for delivery at his works, and install them on the dredge, furnishing the chain slings and bands shown. Blocks from which suction pipes are suspended shall have 30-inch cast-iron sheaves with bushing and all made to swivel. Number of sheaves in blocks to be as shown. The suction elbow, swivel joint, Y-pipe and connections to pump and casting at ends of discharge pipe shall be of cast-steel. The discharge pipe between the Y-pipe and end castings shall be of lapwelded steel pipe  $\frac{3}{8}$ -inch thick,  $21\frac{1}{4}$  inches inside diameter, with flanges riveted on, the bends being formed by bending a piece of pipe. The pieces of this pipe shall be in uniform lengths, the necessary adjustment to the ship being made by small cast-iron space pieces.

209. *Steam Hoisters*.—There shall be two steam hoisters, Lidgerwood, or other equally good. They shall have double cylinders, and be built to reverse with links. Each engine shall have two drums for hoisting and lowering the suction pipes; drums to be turned; if the two drums are on the same shaft, the ratio of diameters to be such as to cause little bending in the flexible joint; if gearing is used, the same ratio to be maintained by different rates of revolutions. Cylinders to be 10-inch diameter by 12-inch stroke. Engines to be right and left handed. Throttles and brake to be operated from top of house. Put rollers and pans under leads as directed.

210. *Piping.*—The steam, exhaust, also water service pipes, to be of copper and brass; exhaust pipes from auxiliary to connect to heater. There shall be a valve in each exhaust pipe, between engine and heater. Auxiliary machinery shall also be provided with atmospheric exhaust.

211. *Tools.*—There shall be a complete set of wrenches for engines, pumps and 12 for suction pipes.

212. *Cover to Discharge Pipes.*—Where the discharge pipes come through the deck the opening around pipes shall be made tight.

213. *Chutes.*—There shall be chutes built for the discharge pipes, of  $\frac{1}{4}$ -inch steel at sides and top,  $\frac{1}{2}$ -inch on bottom, with gates as per drawing. These chutes shall have distributing doors in the sides and bottom as shown, and shall be covered with steel.

214. *Wire Falls.*—There shall be 8 pliable plow steel wire falls furnished. Four of these to be  $\frac{3}{4}$ -inch diameter, and four to be  $\frac{5}{8}$ -inch diameter. These shall be long enough to successfully operate the suction pipes in 45 feet of water, when the ship is light.

215. *Painting.*—The contractor shall paint all engines, suction and discharge pipes, pumps, and chutes three coats of white lead paint; last coat to be applied after the trial, prescribed in Par. 234.

216. *Gage Board.*—On gage boards near the pumping engines shall be mounted steam and receiver gages for each engine, a vacuum gage and a gage on discharge of each pump.

217. *Hoisting Davits.*—These shall be constructed as shown with braces and guys. The springs on the davit heads shall be of the construction shown, 3 on each head. Each spring shall be wound from such a size of wire that the coils shall not close up metal to metal under a load of less than 10,000 pounds for each coil.

### ELECTRIC LIGHT PLANT.

218. *General Description.*—This shall consist of two engines and generators of 15 kilowatts, capacity 110 volts each, 6 pole. Each set shall be secured on a common bed plate, have a solid shaft, and be securely mounted in the engine room. The bed plates shall rest in metal pans, with edges turned up 2 inches, to catch waste oil and water; the pans shall rest on and be secured to wooden bases not less than 2 inches in thickness, to deaden vibration. All parts must be accessible for examination, adjustment and repairs. Oil guards shall be provided where necessary. The sets must be thoroughly balanced, run true, and must be able to run under full loads for long periods, without undue heating or wear. The generating sets shall be provided with durable water proof coverings and all necessary tools, together with wrenches and tool board. The driving shafts shall be fitted with collars, which will prevent a movement of the shaft in the direction of its length. This shall be of the General Electric Company's type or equal. Put reducing valve on steam lines. The generator shall operate either singly or in parallel.

219. *Switch Board.*—There shall be one large 2-panel switchboard. This shall be of slate,  $1\frac{1}{4}$ -inch thick, finished with paraffine and supported on angle iron frame where directed. It shall be provided with a suitable waterproof covering, and shall contain switches for each dynamo and on it shall be mounted:

Independent switches for each circuit.

2 round pattern Weston voltmeters, reading to 150 volts.

1 round pattern ammeter, reading to 150 amperes.

2 shunt rheostats to regulate voltage from 10 volts below normal to 10 volts above.

2 two-point voltmeter switches.

1 two-light ground detector.

- 1 two-point ammeter switch.
- 2 150-ampere double-pole, double-throw knife switches, with 150 ampere fuses.
- 2 110-volt pilot lamps on goose-neck brackets.
- 2 approved circuit breakers.

And there shall also be furnished:

- 1 magneto bell with 25-foot leads.
- 1 15 to 150-volt portable voltmeter with 25-foot leads.

220. *Circuits.*—Six separate circuits shall be run, one for the projector, one for the engine room and boiler room, one for crew's quarters forward, one for midship deck house, one for after deck house and crew's quarters, and one for refrigerating plant and ventilator. Suitable resistance coils, mounted on non-combustible frames, shall be supplied as a dead resistance for projector mains; terminals shall be furnished and located for the following lights:

221. *Lamps Required.*—16 c. p.

- 13 in pilot house and room aft.
- 18 in petty officers' quarters forward.
- 2 in chain locker water tight.
- 3 in lower hold forward.
- 8 in sides forward bin.
- 8 in room over boilers.
- 4 over discharge chutes, hooded.
- 6 lower boiler room.
- 10 upper engine room.
- 16 lower engine room.
- 8 sides after bins.
- 32 officers' quarters aft.
- 24 lower quarters aft.
- 12 lower hold aft.

- 16 on sides of houses.
- 20 additional to be located later.
- 12 portable light plugs with 50-foot leads.
- 8 W. T. plug receptacles on sides of houses.
- All to be supplied with key switches.
- 50 c. p. lamps.
- 2 lamps for side lights.
- 1 lamp for mast head.
- 4 c. p. lamps.
- 2 lamps in binnacle in pilot house.

(Binnacle to be supplied by United States.)

222. *Seachlight*.—An approved searchlight of 35 amperes capacity, and equipped with pilot house attachments, shall be erected on said pilot house, and controlled from within. It shall be automatically regulated without the use of springs, with silvered reflectors 18 inches in diameter. The searchlight circuit shall lead from the switchboard to the pedestal furnished for the searchlight having no connection with the incandescent circuits. The area of the cross section of the conductors shall not be less than 500 circular mills per ampere at full load. A suitable resistance coil on non-combustible frame shall be supplied and fitted in dyamo room or at a controlling stand as a dead resistance for searchlight mains. Furnish an extra set of glass strips for front, canvas cover, tools and 25 pairs of carbons. This shall be of the General Electric Company's make or equal.

223. *Lamps*.—The lamps shall be designed for the 110-volt system of 3.5 to 4 watts efficiency. They shall have water-tight base connections and be interchangeable in their sockets. The filaments must not drop when the lamps are placed horizontally. The lamps must be of the best quality and finish, and all those of the same candle power shall be uniform in size. All leading-in wires and

anchors must be fused in glass; all anchors must be made of metal. Each lamp must be marked on the inside of the bulk with the date of manufacture, and shall have its rated candle power, the voltage necessary to give this candle power, and the name of the manufacturer, conspicuously labeled on the outside of the bulb. The material used for connecting the base to the bulb must be so treated as to insure against danger of short-circuiting the lamp when exposed to moisture. The contractor will be required to guarantee that all lamps shall have an average life with full candle power of 600 hours. Twenty-five additional 16 c. p. lamps, with three 50 c. p. lamps, shall be furnished by the contractor. The side lights and head-light lamps shall be keyless; they shall be properly set and wired; the lights to be controlled by two switches with fuses placed in the pilot house. Furnish 4 additional 4 c. p. lamps.

224. *Running Light Telltale Board.*—There shall be one running light telltale board located in the pilot house, such as is manufactured by the General Electric Co., page 43 of their 1900 catalogue, or equal.

225. *Wiring.*—The wiring through the ship shall be of the Greenfield Lead covered Flexible Steel Armored Conductors, or other equally good. All junction boxes to be made water tight.

226. *Safety Fuses.*—Except for single lamp circuit, safety fuses shall be provided for all switches, and at the beginning of all branches which are of smaller sizes than the leads from which they are derived. Each fuse must carry the current for which designed and open the circuit when this current exceeds the normal current by one-third. A 200 per cent. extra supply of fuses shall be furnished. These shall be of the water-tight type.

227. *Design and Fixtures.*—The following standard

electric fittings shall be furnished and fitted as herein specified: Fixtures in galleys, Plate No. 23, No. 601. Captain's room, spare room, engineer's room, mate's room, inspector's room, Plate No. 10, No. 521; in the above-mentioned rooms there shall be two-light ceiling fixtures, Plate No. 21, No. 649. Bath rooms, captain's spare rooms, inspector's room, shall have one fixture each, Plate No. 15, No. 551. Officers' mess room, two ceiling fixtures, Plate No. 23, No. 601. Petty Officers' mess room aft, two ceiling fixtures, Plate No. 23, No. 601. The balance of the fixtures shall be from Plate No. 22, No. 321. Portable hand lamps, Plate No. 14½, No. 5. Fire room fixtures, Plate 14½, No. 674. Side lights, Plate 8½, No. 678. Mast head light, Plate 8½, No. 682. Two anchor lights, Plate 8½, No. 681. The above side mast head and anchor lights shall be fitted for oil as well as electricity. The above fixtures are taken from Page Brothers & Co., 347 Cambridge Street, Boston, Mass.; Catalogue No. 12. Those furnished, if not the same as above, shall be equally good, of a similar design, and of the same finish. All the above fixtures shall have an oxidized bronze finish.

#### GENERAL PROVISIONS.

228. The purpose and spirit of these specifications are that the contractor is to provide and deliver a staunch dredge hull and first-class machinery complete in every respect; and any parts or appurtenances essential thereto, although not specifically mentioned in these specifications, shall be provided by the contractor without additional cost to the United States. The successful bidder must guarantee the materials and workmanship to be first-class in every respect.

229. *Reputation of Bidders.*—The reputation of the

bidder as a builder of sea-going ships, and the adequacy of his resources and facilities for doing the work bid on within the time stated in his proposal, will be considered in making award. Each bidder will state, in his proposal, what ships, intended to be habitually used at sea, he has built, giving character and gross tonnage of each and length of time, after date of contract order, occupied in building.

230. Proposals.—The right is reserved to make such award as, taking into consideration all questions affecting the total cost, shall be deemed most advantageous to the United States.

231. *Time of Completion.*—Each bidder must state length of time, after notification of approval of contract within which he will agree to complete the work bid on. The time for completion is important and will be considered in making award.

232. *Storage for Outfit.*—The contractor shall furnish a safe, dry and suitable place approved by the Engineer, for storage of removable outfit furnished by the United States for the dredge, and shall be responsible for all damages to this outfit by fire or water while it is in the storage place. The outfit will be supplied by the Government and delivered at such time in advance of the completion of the contract as may be convenient to the Government. All necessary hauling from the railroad to the store-room and from the store-room to the dredge, and the labor for putting on board shall be furnished by the contractor. All the above shall be furnished by the contractor without additional cost to the United States.

233. *Office for Inspector.*—A suitable office, properly furnished with suitable desks, tables, chairs, water cooler, wash stand, wash bowl, pitcher, soap and towels, heated and lighted, shall be provided by the contractor for the use

of the inspector and his assistants, if any, and if hull and machinery are built at two or more different points, two or more such offices, if found necessary, shall be provided. All the above shall be furnished by the contractor without additional cost to the United States.

234. *Trials.*—Upon the completion of the dredge, with all parts and appurtenances pertaining thereto, as required by these specifications, except cleaning, painting, etc., below indicated, the vessel and all machinery and parts thereof shall be given a sea trial, extending over as many days as may be necessary, under conditions, as nearly as may be, analogous to those under which she is expected to work in actual practice. This shall be made at a point as near as practicable to the place of construction, satisfactory to the Engineer and where proper material at proper depths can be found. Three days of actual dredging work will be required in this test, the time of going and returning being dependent upon the locality of construction. A full-speed run of four consecutive hours will also be required. These trials shall be made under the direction of the Engineer and at the expense of the contractor. Should defects develop during this test, due to defective workmanship or material, or to plans furnished by the contractor and proved to be unsuitable, even though they had been preliminarily approved, they shall be made good by the contractor, after which the dredge will be again tested as above, for such length of time, not exceeding three days, as may be necessary. If the second test still shows the existence of defects, correction will be made, and the dredge tested again, and if necessary, this process shall be repeated until the dredge is found satisfactory in all respects. The dredge shall then be cleaned thoroughly and put in first-class shape, dry docked, and painted before being turned over to the United States. The contractor shall furnish without cost

to the United States a convenient berth at which she may lie during the time necessary, after completion of painting, for putting aboard her outfit. Inclining experiments to locate metacenter shall also be made once when directed. When the dredge is ready for final trial and the tenth payment is made (paragraph 239) the dredge shall be regarded as completed within the meaning of paragraph 4 of these specifications, so far as the liquidated damages are concerned.

235. *Delivery.*—The contractor shall deliver the dredge complete at the point where either the hull is constructed or the machinery is installed, as indicated by him in his proposal.

236. *Final Trial of Machinery.*—After completion of the dredge as specified in Par. 234, and before acceptance, she will be given a trial of 30 working days, and all parts of the machinery which give out or show undue wear during this time, shall be replaced at the expense of the contractor, provided the defects are due to defective workmanship or material, or to plans furnished by the contractor and proved to be unsuitable, even though they had been preliminarily approved. Delay caused by such failure and replacing shall not be counted as part of the 30-days' trial. This 30-days' trial will be made by the United States by the regular crew of the dredge after she has arrived at Galveston Harbor, or other point selected by the Engineer. When practicable and when it appears that no additional cost to the United States will probably be incurred by the delay caused by notifying the contractor, he will be so notified and directed to replace defective or broken parts; otherwise the defective or broken parts will be replaced by the United States. On receiving such notice, the contractor shall at once proceed to replace the defective or broken parts in as short a time as the United States could replace

them, counting said time from the date of receiving the above notification. If the contractor refuses to replace said defective or broken parts, or delays in doing so, the United States will replace them, charging the cost of replacing to the contractor, as well as any actual loss due to the delay in replacing.

237. *Spare Parts.*—There shall be furnished as spare parts:

1 suction elbow.

1 swivel joint and stuffing box for suction pipe, complete.

1 distance piece for dredging pump.

1 suction head for dredging pump, including inner and outer rings.

1 dredging pump periphery, bottom half.

1 dredging pump periphery, top half.

1 dredging pump back head liner.

1 dredging pump Y-Pipe complete.

All the above shall be so made that they can be used on either pump.

There shall also be furnished:

2 dredging pump back heads, 1 port and 1 starboard.

2 dredging pump runners, 1 port and 1 starboard.

2 dredging pump shafts with nuts, 1 port and 1 starboard.

All the above, together with the other castings used in the construction of the pumps and pipe lines, shall be drilled to template and the templates (of steel) furnished with the dredge. All shall be of the material previously specified for these parts.

There shall also be furnished, two complete sets of bolts for the entire pump and suction system, one-fourth of a set of follower bolts and nuts for each steam piston of main and pumping engines, one-fourth of a set of springs

for each piston, one crown and one butt brass for crank pin of main and pumping engines, one set of cross-head journal brasses of one main and one pumping engine, one complete set of metallic packing for each stuffing box, one set of water valves for each pump, one set of brasses for valve gear for one cylinder of main and one cylinder of pumping engine, twelve shaft-coupling bolts for main shaft, six bolts for pumping engine shaft, twenty-five condenser tubes, fifty tube glands, with tool for setting up, and twelve patent boiler tube-stoppers; also two approved steam tube-cleaners with the necessary lengths of steam hose and connections.

238. *Patterns.*—There shall be furnished a complete set of patterns of all the cast spare parts, called for and pattern for the end castings on discharge pipe. These patterns shall be well and substantially made so that at least 12 moulds can be made from each in the future. Full patterns will be required for all parts except pump shell and runner. The patterns shall be well boxed and crated, the patterns for no two different articles being in the same crate or box, and the package plainly marked with the contents. These boxes or crates shall be put together with screws so that they can be used several times. These patterns shall be delivered either on board the dredge or at a railroad station or steamer wharf, as may be desired by the Engineer. The cost of the above requirements as to spare parts and patterns should be included in the price bid for the dredge. Patterns for worm and wheel of gate mechanism also to be furnished.

239. *Payments.*—Provided the requirements of these specifications are complied with, and funds are available therefor, nine payments, each of 10 per cent. of the total consideration of the contract, will be made, based on the report of the inspector; the first when the dredge as a whole is 10 per cent. completed; the second when 20 per

cent. is completed, and so on, the ninth such payment being made when the dredge is ready for the trials prescribed in Par. 234. From each of these payments 10 per cent. will be reserved. After being turned over to the United States as provided in Par. 236, the tenth payment of 7 per cent. will be made, and all reserved percentages paid to the contractor. The eleventh and final payment of 3 per cent. will be made after the successful completion of the final trial of machinery described in Par. 236, and delivery of the dredge to the United States. Payments will be made by check on the United States Assistant Treasurer at New York. In making up percentages of completion, material and accessories specially ordered for this work and unsuited for stock or for other work will be counted; provided, they are first delivered at the shipyard and satisfactory evidence presented that they have been fully paid for.

240. *Ownership.*—All parts paid for under the system of partial payments above specified shall become thereby the sole property of the United States, but this provision shall not be interpreted as relieving the contractor from the sole responsibility for the proper care and protection of said parts prior to the delivery of the dredge of the United States, or from any other of the provisions of these specifications.

The successful bidder will be required to enter into contract, authorizing the United States, in case of default or failure upon the part of the contractor to go forward with the work and make satisfactory progress toward its completion, to annul the contract as provided in the form of contract to be entered into, and take possession of the contractor's plant and yard, as well as all machinery, tools, and appliances appertaining thereto necessary to be used in finishing the dredge, and any material on hand intended to

be used in its construction, or to remove the dredge and material to other plants or yards, as the Engineer may determine, the title to said dredge and material to vest in the United States forthwith upon said annulment of the contract. In such event the contractor shall be liable for any excess of cost of the construction of the dredge over the price named in the contract.

241. *Insurance.*—It is expressly understood and agreed that, preceding each payment, the contractor is to have the dredge insured against fire and marine risk at his own cost for and in behalf of the United States, in the name of the Engineer who will enter into contract for building the dredge, to at least the amount of said partial payment, and is thereafter to keep the said property insured to at least the full aggregate of the payments made upon it by the United States, until final acceptance.

242. *Blue Prints.*—The contractor shall furnish this office with two complete sets of blue prints and one set of tracings, of all drawings used in the construction of the hull and machinery, including piping and electric wiring; and will also furnish one complete set of the prints to the inspector. No work shall be started on any part of the machinery or dredge until drawings have been approved. This applies to all parts of hull and machinery, except such parts of the auxiliary machinery of which it is impracticable to furnish tracings. Of these, blue prints will be accepted.

243. *Orders.*—Two copies of all orders shall be furnished the inspector as soon as issued and immediate notice given of the receipt of all material or appliances for the dredge, and detailed list of same.

244. *Weights.*—The contractors shall furnish the inspector daily with the finished weights of all material, machinery, or fixtures that may be taken to the ship.

245. *Plate Index.*

- Plate 1. Lines.  
 Plate 2. Midship section.  
 Plate 3. Inboard profile.  
 Plate 4. Outboard profile.  
 Plate 5. Deck plans.  
 Plate 6. Sections of bins.  
 Plate 7. Miscellaneous details.  
 Plate 8. Dredging pump.  
 Plate 9. Engines.  
 Plate 10. Boilers.

## PROPOSAL FOR SEA-GOING SUCTION DREDGE.

..... 1908.  
 To MAJOR J. C. SANFORD,

*Corps of Engineers, U. S. Army,*

815 Witherspoon Building, Philadelphia, Pa.

MAJOR:

In accordance with your advertisement of January 15, 1908, inviting proposals for constructing one sea-going suction dredge, and subject to all the conditions and requirements thereof and of your specifications dated January 15, 1908, we (or) I propose to furnish all the necessary labor and material except as specified to be furnished by the United States and to build the dredge complete in every respect and to deliver said dredge at.....

.....within .....  
 months and .....days from the date  
 of notification of approval of contract, including time nec-  
 essary for trials as described in said specifications, except  
 the final trials of machinery described in Par. 236 for the  
 sum of ..... dollars and  
 ..... cents (\$.....).

We (or) I have built the following vessels intended for habitual service at sea, within the time stated for each, counting from date of contract or order. [Bidders who are not shipbuilders must state what shipbuilder is proposed as builder of the hulls, and must fill out on this form the building record of said shipbuilder.]

We (or) I make this proposal with a full knowledge of the kind, quantity and quality of the articles required, and, if it is accepted, will, after receiving written notice of such acceptance, enter into contract within the time designated in the specifications, with good and sufficient sureties for the faithful performance thereof.

(Signature) .....

(Address) .....

(Signature) .....

(Address) .....

SIGNED IN DUPLICATE.

[To be used ONLY when Guarantor is a Corporation.]

## **GUARANTY**

The .....,  
of..... a corporation existing under the laws of the State of.....  
....., hereby undertake that if the bid  
of.....  
herewith accompanying, dated.....,  
1908, for

## CONSTRUCTING A SEA-GOING SUCTION DREDGE

be accepted as to any or all of the items of supplies, materials and services proposed to be furnished thereby, or as to any portion of the same, within sixty days from the date of the opening of the proposals therefor, the said bidder ..... will within ten (10) days after notice of such acceptance, enter into a contract with the proper officer of the United States to furnish such articles of supplies and materials and such services of those proposed to be furnished by said bid as shall be accepted, at the prices offered by said bid and in accordance with the terms and conditions of the advertisement inviting said proposals, and will give bond with good and sufficient surety or sureties, as may be required, for the faithful and proper fulfillment of such contract. And said corporation hereby binds itself and its successors to pay to the United States, in case the said bidder shall fail to

enter into such contract or give such bond within (10) days after said notice of acceptance, the difference in money between the amount of the bid of said bidder on the articles or services so accepted and the amount for which the proper officer of the United States may contract with another party to furnish said articles and services, if the latter amount be in excess of the former.

*In Witness Whereof*, The name and corporate seal of said corporation has been hereto affixed this..... day of....., 1908, and these presents duly signed by <sup>1</sup>its..... pursuant to a resolution of its<sup>2</sup>..... passed on the..... day of..... A. D. 190 , a copy of the record of which is on file in the War Department.

Attest:

.....  
.....  
.....  
.....  
By.....  
.....

---

<sup>1</sup>The president or officer authorized to sign for the corporation.

<sup>2</sup>The board of directors or other governing body of the corporation.

<sup>3</sup>Here affix the corporate seal.

[To be used ONLY when Guarantors are Individuals.]

## **GUARANTY.**

We.....  
of....., in the  
County of.....  
and State of.....,  
and.....of .....,  
in the County of.....  
and State of.....  
hereby undertake that if the bid of.....  
.....herewith accompanying,  
dated....., 1908, for

## CONSTRUCTING A SEA-GOING SUCTION DREDGE

be accepted as to any or all of the items and supplies, materials and services proposed to be furnished thereby, or as to any portion of the same, within sixty days from the date of the opening of proposals therefor, the said bidder.....

..... will within ten days after notice of such acceptance, enter into a contract with the proper officer of the United States to furnish such articles of supplies and materials and such services of those proposed to be furnished by said bid as shall be accepted, at the prices offered by said bid and in accordance with the terms and conditions of the advertisement inviting said proposals, and will give bond with good and sufficient surety or sureties as may be required for the faithful and proper fulfillment of such contract. And we bind ourselves, our

heirs, executors, and administrators, jointly and severally, to pay to the United States, in case the said bidder shall fail to enter into such contract or give such bonds within ten days after said notice of acceptance, the difference in money between the amount of the bid of said bidder on the articles or services so accepted and the amount for which the proper officer of the United States may contract with another party to furnish said articles and services, if the latter amount be in excess of the former.

Given under our hands and seals this.....  
day of.....nineteen  
hundred and eight.

In presence of

..... as  
to ..... [Seal]\*  
..... as  
to ..... [Seal]\*

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\*If executed in Maine, Massachusetts, or New Hampshire affix adhesive seal.

JUSTIFICATION OF THE GUARANTORS (IN-  
DIVIDUALS.)

STATE OF..... } ss:  
*County of.....* }

I, ....., one of  
 the guarantors named in the foregoing guaranty, do swear  
 that I am pecuniarily worth the sum of forty thousand  
 (40,000) dollars, over and above all my debts and liabilities.

.....  
 Subscribed and sworn to before me this.....  
 day of....., 1908,  
 at.....

STATE OF..... } ss:  
*County of.....* }

I, ....., one of  
 the guarantors named in the foregoing guaranty, do swear  
 that I am pecuniarily worth the sum of forty thousand  
 (40,000) dollars, over and above all my debts and liabilities.

.....  
 Subscribed and sworn to before me this.....  
 day of....., 1908,  
 at.....

---

<sup>1</sup>The oath to be taken before a notary public or some other officer having general authority to administer oaths. If the office has an official seal it must be affixed, otherwise the proper certificate as to his official character must be furnished.

I,<sup>2</sup>.....do hereby  
certify that.....  
and.....the guar-  
antor above named,.....  
personally known to me, and that, to the best of my knowl-  
edge and belief, .....<sup>3</sup> is pecuniarily worth,  
over and above all his debts and liabilities, the sum stated  
in the accompanying affidavit subscribed by him.

I,.....do hereby  
certify that.....  
the guarantor above named, is personally known to me,  
and that to the best of my knowledge and belief, he is  
pecuniarily worth, over and above all his debts and liabili-  
ties, the sum stated in the accompanying affidavit subscribed  
by him.

---

<sup>2</sup>This certificate to be by a judge or clerk of a United States court, a United States district attorney, United States commissioner, or a judge or clerk of a State court of record with the seal of said court attached. If the official can make the certificates as to both sureties, it will not be necessary to fill out the next form below.

<sup>3</sup>He or each.

## In the Court of Claims of the United States.

No. 31281.

MARYLAND STEEL COMPANY OF BALTIMORE, MARYLAND,  
v.  
THE UNITED STATES.

*II. Defendants' Answer and Cross Petition.*

Filed Feb'y 15, 1912.

Come now the defendants, above named, by their Attorney General, and for answer to the claimant's petition and for cross petition on their own behalf allege:

**I.**

They admit that a contract existed between the claimant and the defendants, as set out in claimant's petition, and that from the full amount otherwise due the claimant upon said contract there was deducted the sum of \$4,750, because of the facts set out in the cross petition herein contained. But the defendants deny that there is anything due the claimant under and by virtue of the contract set out in claimant's petition.

**II.**

The defendants, for a cross petition, hereby claim a set-off in the said sum of \$4,750 so retained by the defendants from the amounts otherwise due the claimant under the contract herein sued  
82 upon. The defendants allege the facts in regard to said set-off to be as follows:

That heretofore a written contract was entered into by and between the Maryland Steel Company, the claimant herein, and the United States, for the construction of a single-screw steamer to be known as the General Joseph E. Johnston. That by the terms of said contract the said steamer was to be delivered to the Government on the 9th day of December, 1903, but that the Maryland Steel Company, the claimant herein, failed to complete and deliver said steamer until April 1, 1904, being ninety-five days after the expiration of the contract period, exclusive of Sundays and holidays. That the contract for the construction and delivery of said steamer contained the following provision as to liquidated damages:

Article 2. That the Maryland Steel Company shall complete the construction and equipment of the said steamer and deliver same to the party of the first part in New York Harbor, or as directed by him, in one hundred forty (140) days, exclusive of Sundays and legal holidays, from the date of this contract. And it is hereby agreed that in case the party of the second part fails to complete in all respects and deliver the said steamer within the time herein specified, the loss resulting to the United States from such failure is

hereby fixed at the rate of fifty (\$50) dollars per day for each and every day, exclusive of Sundays and legal holidays, completion and delivery of the vessel is delayed beyond the period hereinbefore specified, and it is hereby stipulated that the party of the first part may withhold such amount as liquidated damages from any money due and payable to the party of the second part by the United States for work done under this contract. In the event of the act of God, war, fire, or strikes and lockouts of workmen affecting the working of this contract, the date of completion of the steamer may be extended for such period as may be deemed just and reasonable by the party of the first part, to cover the time lost from any of the above-mentioned causes.

That the Maryland Steel Company failed to deliver said steamer until ninety-five days beyond the contract date, which delay was wholly the fault of the Maryland Steel Company, and was to no extent whatever the fault of the Government. That by virtue of said delay on the part of the claimant there was justly due the Government \$50.00 as agreed liquidated damages for each of the ninety-five days beyond said contract date, amounting in all to the sum of \$4,750. That inadvertently and by mistake of fact the officers of the Government having direct charge of said payment paid the whole amount of the contract price for the construction and delivery of said steamer to the claimant, and failed to deduct therefrom the said sum of \$4,750, so fixed as liquidated damages in said contract. That the said overpayment was due wholly to the mistake on the part of the officer paying the same, and was not binding upon the 84 United States, and that the said sum of \$4,750, so inadvertently, improperly, and illegally paid by the Government to the Maryland Steel Company, ever since said payment was and now is due from said company to the Government. That demand has been made upon said Maryland Steel Company for the repayment of said sum, which demand was refused, and the Maryland Steel Company has failed, neglected, and refused to return the same to the Government.

The defendants now claim, as a set-off to the amount otherwise due on the contract sued on by the claimant in this case, that said amount of \$4,750, so improperly, inadvertently, and illegally paid the Maryland Steel Company under the contract for the steamer Joseph E. Johnston, should be set off and allowed as against the payment of said \$4,750 so retained by the officers of the Government under the contract sued on in said claimant's petition.

The defendants therefore demand judgment in favor of them upon this cross petition for the said sum of \$4,750, and that the same be set off as against the amount otherwise due the claimant under the contract herein sued on by the claimant in its petition, and that judgment therefor be rendered in favor of the defendants.

JOHN Q. THOMPSON,  
*Assistant Attorney General.*

S. S. ASHBAUGH,  
*Assistant Attorney.*

In the Court of Claims of the United States.

No. 31281.

MARYLAND STEEL COMPANY OF BALTIMORE COUNTY, Claimant,  
v.  
UNITED STATES.

*III. Claimant's Replication and Answer to Defendants' Set-off.*

Filed April 15, 1912.

For answer to the defendants' set-off herein filed the claimant says there was such a contract, an extract of which is set out in the plea of set-off, but that before the expiration of the time as provided in said contract for the delivery of the vessel therein provided for and agreed to be built and, to wit, on the first day of December in the year, 1903, the proper officer and agent of the defendants under that contract, the Quartermaster-General of the Army, waived the limit of time within which said vessel was to be completed;

That the vessel was subsequently completed and the contract price paid therefor.

FREDERICK W. WOOD, *President.*

COUNTY OF BALTIMORE,  
*State of Maryland, ss:*

F. W. Wood, being duly sworn says that he is the President of the Maryland Steel Company of Baltimore County and the Agent thereof, that he has read the foregoing answer and that the facts therein stated are true.

Subscribed and sworn to before me this 9th day of April, 1912.  
[SEAL.] JOHN H. K. SHANAHAN, JR.,  
*Notary Public.*

W. D. DAVIDGE,  
*Atty for Claimant.*

87                  *IV. Argument and Submission of Case.*

On the 28th day of May, 1912, this case came on to be heard. Mr. Walter D. Davidge was heard for the claimant; Mr. S. S. Ashbaugh was heard in opposition, and the case was submitted.

88      *V. Findings of Fact, Conclusion of Law, and Opinion of the Court.*

Filed December 2, 1912.

MARYLAND STEEL COMPANY OF BALTIMORE COUNTY

v.

THE UNITED STATES OF AMERICA.

This case having been heard by the Court of Claims, the court, on the evidence, makes the following

*Findings of Facts.*

I.

The claimant herein is a corporation organized under the laws of the State of Maryland.

II.

On June 24, 1903, the claimant as shown by the evidence entered into a written contract with the United States through D. D. Wheeler, Assistant Quartermaster General, United States Army, for the construction and equipment of a single-screw steamer for harbor service of the Quartermaster's Department and submarine cable service, in accordance with the specifications made a part of the contract, for the consideration of \$88,000, to be paid in various amounts as the work progressed, less 10 per cent thereof withheld to make good any defects that might be due to inferior material or bad workmanship, in the absence of such defects said retained percentage to be paid within 60 days after the delivery and acceptance of said steamer, and the vessel to be completed within 140 days, exclusive of Sundays and legal holidays, or by December 9, 1903.

Said contract was subject to the approval of the Quartermaster General, United States Army, and was by him approved June 29, 1903.

III.

By the terms of said contract it was provided that if the claimant should fail to complete and deliver said steamer within the 89 stipulated time it should pay to the United States the sum of \$50 per day as liquidated damages for each and every day so delayed, exclusive of Sundays and legal holidays, which amount it was provided might be withheld from any money due to the claimant under said contract, about which there is no controversy.

IV.

On December 1, 1903, before the time stipulated for completion had expired, and at the request of the claimant company, owing to unavoidable delays in procuring the necessary material, the

Quartermaster General, United States Army, within his discretion under the contract, orally waived the time limit in said contract for constructing and equipping said steamer, and subsequently on April 2, 1904, by letter to the Quartermaster General, confirmed such waiver, about which there is no controversy.

### V.

The steamer so contracted for was completed, delivered, and accepted by the United States on April 1, 1904, or 95 days, exclusive of Sundays and legal holidays, after the time fixed in the contract therefor and on April 13, 1904, the Quartermaster General of the Army directed the depot quartermaster at New York to make final payment for said steamer, retaining, however, the 10 per cent to make good any defects there might be in the material or workmanship.

Thereafter, July 13, 1904, the entire sum stipulated to be paid by the defendants was paid without any deduction whatever.

Whether the claimant unreasonably delayed the work after the waiver of the time limit as aforesaid does not appear.

### VI.

It is not shown that the United States suffered any actual pecuniary loss or damage by reason of the delay of the claimant in the completion and delivery of the steamer.

### VII.

Thereafter, February 24, 1908, the claimant entered into another contract with the United States, made a part of the petition herein, by the terms of which the claimant agreed to build one steel hull twin screw suction dredge and furnish and install therein the propelling machinery, pumping machinery, electric light plant, and all other machinery and other parts required to be installed for the consideration of \$357,500, said work when completed to be delivered to the defendants at Sparrows Point, in the State of Maryland, which work was completed and accepted by the United States on January 6, 1909, and the claimant was paid therefor the stipulated contract price, less \$4,750, which the defendants claim was the amount arising as liquidated damages for the 95 days' delay of the claimant in the completion of the steamer under the first contract hereinbefore referred to and which amount the defendants further claim was inadvertently and under mistake of fact paid to the claimant company.

### VIII.

#### *Counterclaim.*

The Government sets up by way of counterclaim the like sum of \$4,750, which, it claims, was due as liquidated damages for the 95 days' delay of the claimant in the execution of the first contract

hereinbefore referred to, which sum, it is claimed, was inadvertently, improperly, and illegally paid by the officers of the Government to the claimant, and defendants ask that, if any amount is recovered by the claimant under said second contract, the amount of said payment should be offset against the same.

*Conclusion of Law.*

Upon the foregoing findings of fact the court decides, as a conclusion of law, that the petition be dismissed.

*Opinion.*

PEELLE, *Chief Justice*, delivered the opinion of the court:

The claimant seeks recovery for a balance claimed to be due on a contract which was performed according to its terms and full payment therefor made except as to the sum of \$4,750, which the Government by its set-off in the nature of a cross petition alleges should have been deducted as liquidated damages under a prior contract for the failure of the claimant to complete the work thereunder within the contract time, notwithstanding the time limit had been waived and the claimant permitted to proceed with the work to completion and full payment therefor was made.

The claimant for replication admits that there was such a contract, but says that before the expiration of the time fixed therein for the completion of the work the Quartermaster General waived the time limit.

No reference is made in the petition to this prior contract, but the Government by its cross petition alleges that the amount deducted under the contract sued on was inadvertently and contrary to law paid to the claimant under said prior contract.

Said first contract provided for the construction, equipment, and delivery in New York to the Government of a single-screw steamer for harbor purposes, article 2 of which provided as follows:

"Article 2. That the Maryland Steel Company shall complete the construction and equipment of the said steamer and deliver same to the party of the first part in New York Harbor, or as directed by him, in one hundred forty (140) days, exclusive of Sundays and legal holidays, from the date of this contract. And it is hereby agreed that in case the party of the second part fails to complete in all respects and deliver the said steamer within the time herein specified, the loss resulting to the United States from such failure is hereby fixed at the rate of fifty (\$50) dollars per day for each and every day, exclusive of Sundays and legal holidays, completion and delivery of the vessel is delayed beyond the period herein  
91 before specified, and it is hereby stipulated that the party of the first part may withhold such amount as liquidated damages from any money due and payable to the party of the second part by the United States for work done under this contract. In the

event of the act of God, war, fire, or strikes and lockouts of workmen affecting the working of this contract, the date of completion of the steamer may be extended for such period as may be deemed just and reasonable by the party of the first part, to cover the time lost from any of the above-mentioned causes."

It will be noted that time was of the essence of the contract and a breach thereof would have given the opposite party the option of treating the contract as discharged. *Slater v. Emerson*, 19 How., 224. On the other hand, had the contractor failed to perform within the specified time, the Government's permission for it to continue performance would have operated as a waiver of the breach. *Jeffrey Mfg. Co. v. Iron Co.*, 93 Fed. R., 408; *Davis v. Roberts*, 89 Ala., 402; *Barnard v. McLeod*, 114 Mich., 73.

In the present case the time limit within which to complete the work was orally waived by the Quartermaster General before the expiration of the time fixed in the contract therefor, and accordingly the claimant proceeded therewith and thereafter on April 1, 1904, completed the work. On the day succeeding the completion of the work, to wit, April 2, 1904, the Quartermaster General, United States Army, in writing, confirmed the waiver of the time limit as aforesaid, following which, by order of said Quartermaster General, the depot quartermaster at New York made final payment to the claimant for the steamer so completed under said first contract, less 10-per cent retained by way of indemnity for any defects that might appear in either the material or workmanship.

Thereafter, July 13, 1904, the percentage so retained was paid over to the claimant company. Thus the transaction under the first contract, it would seem, was closed.

Nearly four years thereafter, to wit, February 24, 1908, the claimant entered into a written contract, made part of the petition herein, whereby the claimant, for the consideration of \$357,500, agreed to furnish all the necessary labor and material therefor and to build one steel hull twin-screw suction dredge, and to furnish and install therein the propelling and necessary machinery, electric-light plant, etc., and to deliver the work at Sparrows Point, in the State of Maryland, which work was completed on January 6, 1909, and the claimant was fully paid therefor, less \$4,750, which was withheld as due under the first contract as liquidated damages for the 95 days' delay of the claimant in the completion of the steamer thereunder, notwithstanding the waiver of the time limit by the Quartermaster General and payment of said amount as aforesaid.

The verbal waiver of the stipulated time within which to perform work under a contract notwithstanding the act of 1862, 12 Stat., 411, requiring contracts to be in writing, finds support in the case of *Salomon v. United States*, 19 Wall., 17, 19; 7 C. Cls., 482, wherein Justice Miller, reversing this court, said:

"Whether we regard the delivery made in October as made under a verbal extension of the time stipulated in the original contract, or consider it as a new transaction in which the Government 92 received and took possession of the corn, and used part of it and permitted the remainder to be injured in its hands, we think the claimant is equally entitled to be paid for it.

"The act of 1862, requiring contracts for military supplies to be in writing, is not infringed by the proper officer having charge of such matter accepting delivery of such supplies after the day stipulated, nor is a verbal agreement to extend the time of performance invalid."

"And if this were not so, when the quartermaster in charge receives of a person corn for the Government, gives a receipt and voucher for the amount and the price, and the Government uses such part of it as it wants and suffers the remainder to decay by exposure and neglect, there is an implied contract to pay the value of such corn, which value may, in the absence of other testimony, be presumed to be the price fixed in the voucher by the quartermaster."

In the case of *District of Columbia v. Camden Iron Works*, 181 U. S., 453, 461, involving the construction of a similar statute, requiring contracts made by the Board of Public Works of the District to be in writing and signed by the parties, the court held in substance that the delivery of the material contracted for after the time specified in the contract did not constitute a new contract. See also *Williams v. Bank*, 2 Pet., 96, therein cited, and *Phillips Construction Company v. Seymour*, 91 U. S., 646.

But we do not understand the Government to seriously controvert the waiver of the time limit. It does, however, vigorously contend that notwithstanding the waiver the liquidated damage clause of the contract continued in force. The waiver of the time limit was before the expiration of the time agreed upon for the completion of the work and therefore no liquidated damages had then accrued. *Guyer v. Warren*, 175 Ill., 328; *Vandergrift v. Engineering Co.*, 161 N. Y., 435. See Page on Contracts, sec. 1157.

The Comptroller held that where time is of the essence of a contract and the default of the Government causes the contractor to delay in beginning and prosecuting the work, such default on the part of the Government operates to nullify the provision for liquidated damages, leaving the contractor liable only for actual damages. 14 Comp. Dec., 819. Such also was a decision of the Comptroller in 15 Comp. Dec., 362-368.

In the case of *District of Columbia v. Camden Iron Works*, *supra*, where the completion of the work was prevented by the delay of the Government, the court, in substance, held, following the decision in the case of *Williams v. Bank*, 2 Pet., 96, 102, that strict performance being prevented the claim for fines or penalties for delay could not be sustained.

In the present case, however, there is no contention that the Government was at fault or in any way responsible for the failure of the claimant to complete the work within the contract time. On the contrary, by reason of its inability so to do and at its request the time limit was waived by the Quartermaster General.

Had the Government prevented performance the date from which to assess liquidated damages would have been eliminated; but here the failure was alone the claimant's, and to hold that under such

93      circumstances the date from which to assess such damages was eliminated would be giving the claimant an advantage in its own wrong. Hence, it must be held that the waiver by reason of the default of the contractor did not operate in law to relieve it from the payment of the agreed damages. In other words, the waiver simply prevented the forfeiture of the contract and permitted the claimant to continue to perform subject to all the other provisions of the contract, and if thereafter the work was not done within a reasonable time the contract again became subject to forfeiture; but if instead of such forfeiture the claimant was permitted to continue to perform to completion, the provisions of the contract otherwise continued in force.

Any other ruling would deprive the Government of the agreed damages for its indulgence with the claimant, a defaulting contractor, and at the same time relieve it from the damages occasioned by its own default. Nor is it material whether the waiver was before or after default, as the claimant conceded its inability to complete the contract within the agreed time, and for that reason alone the waiver was granted.

There is a vast difference between this case and the United Engineering and Contracting Co. Case, 47 C. Cls. —, where the Government by its delay prevented the claimant from performance within the contract time. In such case the delay of the Government, in the absence of some contract provision therefor, operated in law not only to waive the time limit and give the claimant a reasonable time within which to perform but to eliminate the date from which, upon the default of the contractor, the agreed damages were to have been assessed; and that date eliminated by the default of the Government another or new date could not be fixed except with the consent of the claimant; nor can the continuance of the work by the claimant in such case be construed as continuing in force the liquidated damage clause of the contract, as there is no new date from which to assess such damages, and the claimant had not agreed to submit the fixing of such date to the arbitrary action of an officer of the Government or to a jury. *Mosler Safe Co. v. Maiden Lane S. D. Co.*, 199 N. Y., 479, 489, and cases there cited.

In the present case as the waiver was granted by reason of the default of the claimant such waiver did not embrace a release from the payment of the agreed damages, which were assessable upon its default. Under such circumstances an officer, in the absence of some provision of law or contract therefor, would have no authority to release a contractor from the provision for liquidated damages so arising.

The claimant, however, independent of the waiver, contends that the payment in full under the first contract was an accord and satisfaction conclusive on the Government. But this would not be so if the payment were made under a mistake of fact or contrary to law. *Wisconsin Central Railroad Co. v. United States*, 164 U. S., 190, 212; *McKee v. United States*, 12 C. Cls., 504; *United States v. Bank of the Metropolis*, 15 Pet., 377.

Where one party to an agreement gives and the other accepts, in

satisfaction of a claim in dispute, something other than or different from what he is or claims he is entitled to, such settlement will, in the absence of fraud, mistake, or duress, be considered an accord and satisfaction binding on both parties. But in the present case the

claimant received and accepted what both parties at the time  
94 conceded to be due. True, there was some controversy as to whether the waiver of the time limit operated to deprive the Government of its right to liquidated damages, but the Quartermaster General construed this controversy in the claimant's favor and paid, not a different sum, but the exact sum claimed to be due. *Pickley v. United States*, 46 C. Cls., 77, 91.

The final question therefore is, Shall the settlement thus made stand? There are authorities to the effect that if liquidated damages be not deducted at the time of payment the right thereto is lost. *Hudson on Building Contracts*, p. 538 et seq. and cases there cited. But here again, if the payment was made in mistake of law the Government is entitled to recover it, as held in the case of the Wisconsin Central Railroad Co., *supra*, where, in this respect, quoting from the case of *Barnes v. District of Columbia*, 22 C. Cls., 366, 394, the court said: "The doctrine that money paid can be recovered back when paid in mistake of fact and not of law does not have so general application to public officers using the funds of the people as to individuals dealing with their own money where nobody but themselves suffer- for their ignorance, carelessness, or indiscretion, because in the former case the elements of agency and the authority and duty of officers, and their obligations to the public, of which all persons dealing with them are bound to take notice, are always involved." The court then adds: "We concur in these views, and are of opinion that there is nothing on this record to take the case out of the scope of the principle that parties receiving moneys illegally paid by a public officer are liable *ex aequo et bono* to refund them."

It must therefore be held that the amount herein claimed having been inadvertently and illegally paid to the claimant under said prior contract the same was properly deducted under the contract in suit, and for this reason the claimant is not entitled to recover, and its petition is dismissed, which is accordingly ordered.

Howry, J., was not present when this case was tried and took no part in the decision.

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*VI. Judgment of the Court.*

No. 31281.

MARYLAND STEEL COMPANY OF BALTIMORE COUNTY  
vs.  
THE UNITED STATES.

At a Court of Claims held in the City of Washington on the 2nd day of December, A. D. 1912, judgment was ordered to be entered as follows:

The Court, upon due consideration of the premises, find in favor of the defendants, and do order, adjudge, and decree that the petition of the said Maryland Steel Company of Baltimore County be and the same is hereby dismissed.

BY THE COURT.

96            *VII. Application for and Allowance of Appeal.*

No. 31281.

MARYLAND STEEL COMPANY OF BALTIMORE COUNTY, Claimant,  
vs.

THE UNITED STATES, Defendant.

From the judgment rendered in the above entitled cause on the second day of December, 1912, in favor of the defendant, the claimant, by its attorney, on the eleventh day of January, 1913, makes application for and gives notice of an appeal to the Supreme Court of the United States.

WALTER D. DAVIDGE,  
*Attorney for Claimant.*

Filed January 13, 1913.

Ordered: That the above appeal be allowed as prayed for.  
January 13, 1913.

BY THE COURT.

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Court of Claims.

No. 31281.

MARYLAND STEEL COMPANY OF BALTIMORE COUNTY

vs.

THE UNITED STATES,

I, John Randolph, Assistant Clerk Court of Claims, hereby certify that the foregoing are true transcripts of the pleadings in the above-entitled cause; of the findings of fact and conclusion of law and opinion of the Court; of the judgment of the Court dismissing the petition; of the application for, and allowance of, appeal to the Supreme Court of the United States.

In testimony whereof I have hereunto set my hand and affixed the seal of said Court of Claims this 17th day of January, 1913.

[Seal Court of Claims.]

JOHN RANDOLPH,  
*Assistant Clerk Court of Claims.*

Endorsed on cover: File No. 23,513. Court of Claims. Term No. 435. Maryland Steel Company of Baltimore County, appellant, vs. The United States. Filed January 20, 1913. File No. 23,513.